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PACIFIC PULP & PAPER INDUSTRY

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JANUARY, 1930

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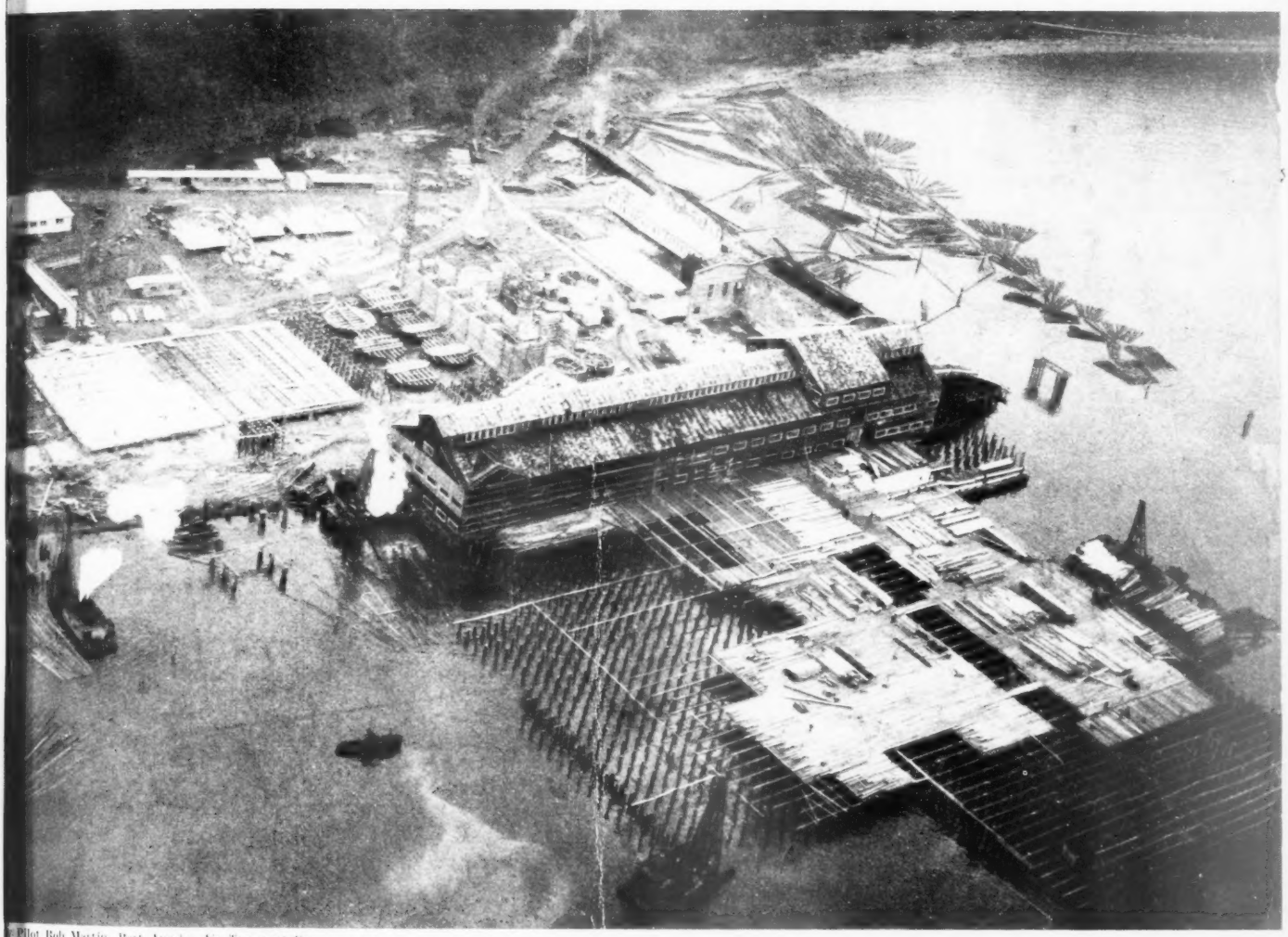
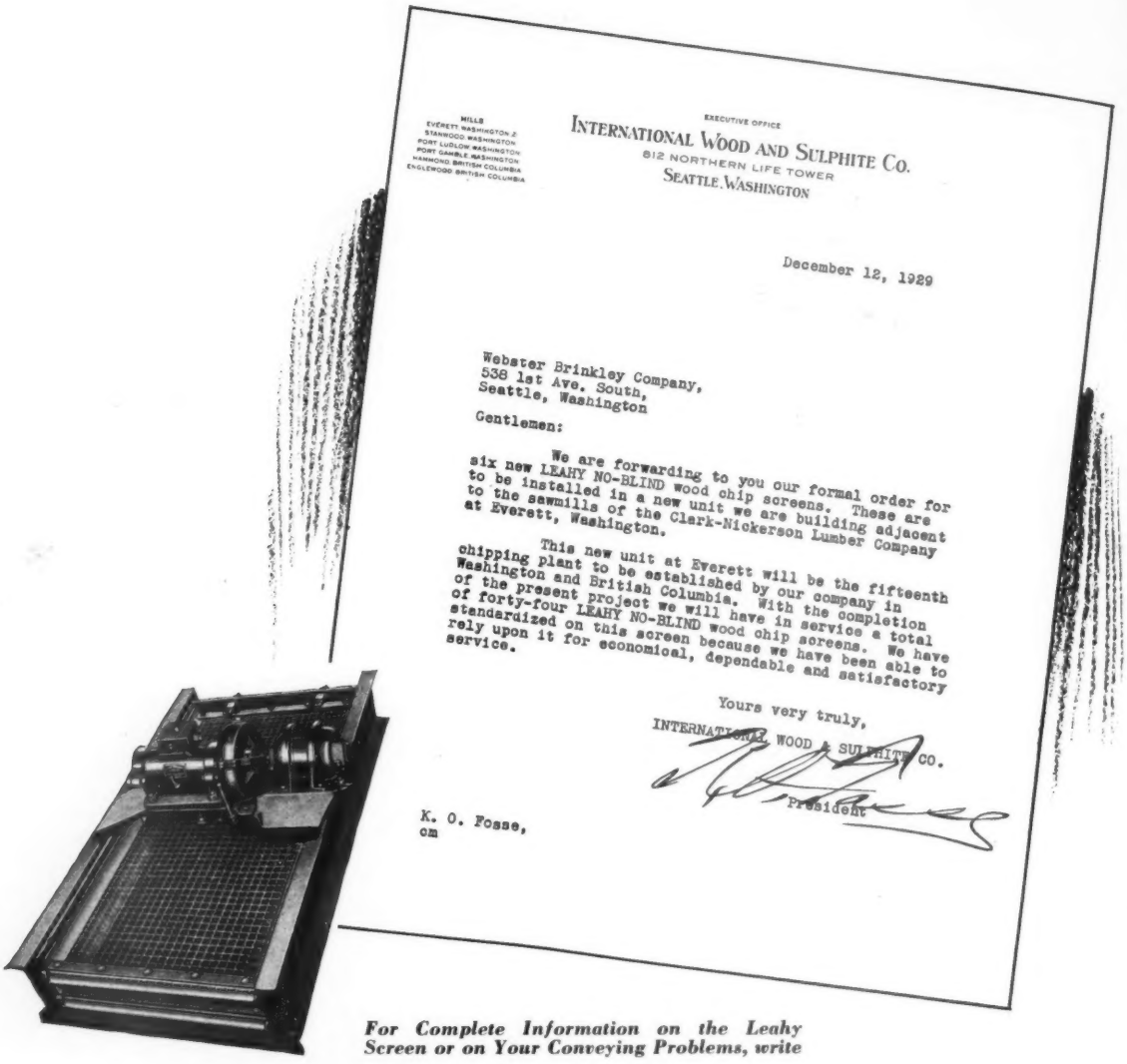


Pilot Bob Martin, Port Angeles Air Transport Co.

PORT ANGELES, WASHINGTON

The Olympic Forest Products Company is making rapid progress in the building of a 500-ton pulp mill with combined sawmill

"We Have Standardized on the LEAHY SCREEN *because* We Can Rely Upon It *for* Economical, Dependable *and* Satisfactory Operation"



MILLS
EVERETT, WASHINGTON
STANWOOD, WASHINGTON
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HAMMOND, BRITISH COLUMBIA
ENGLEWOOD, BRITISH COLUMBIA

EXECUTIVE OFFICE
INTERNATIONAL WOOD AND SULPHITE CO.
812 NORTHERN LIFE TOWER
SEATTLE, WASHINGTON

December 12, 1929

Webster Brinkley Company,
538 1st Ave. South,
Seattle, Washington

Gentlemen:

We are forwarding to you our formal order for six new LEAHY NO-BLIND wood chip screens. These are to be installed in a new unit we are building adjacent to the sawmills of the Clark-Nickerson Lumber Company at Everett, Washington.

This new unit at Everett will be the fifteenth chipping plant to be established by our company in Washington and British Columbia. With the completion of the present project we will have in service a total of forty-four LEAHY NO-BLIND wood chip screens. We have standardized on this screen because we have been able to rely upon it for economical, dependable and satisfactory service.

Yours very truly,
INTERNATIONAL WOOD & SULPHITE CO.
President

K. O. Fosse,
cm

FEB 18 1932

For Complete Information on the Leahy Screen or on Your Conveying Problems, write

WEBSTER-BRINKLEY CO.

SEATTLE, WASHINGTON

Manufacturers and Engineers of Conveying, Screening, Elevating and Transmission Machinery

Pacific Pulp & Paper Industry is published once a month—except in March, when publication is semi-monthly—at 71 Columbia St., Seattle, Wash. Subscription: U. S. and Canada, $4.00; other countries, $5.00. Entered as second class matter May 20, 1927, at the Postoffice at Seattle, under the Act of March 3, 1879.

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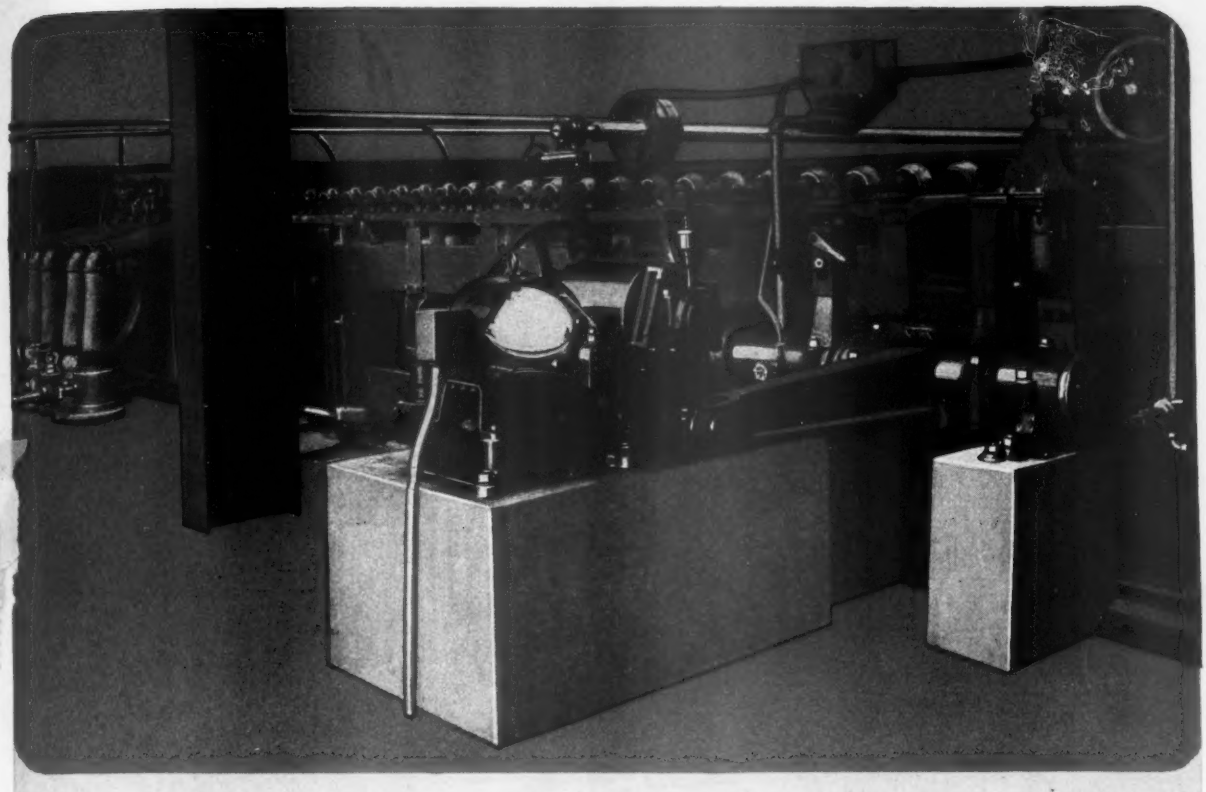


10,000 lbs. less to shake

The BELOIT

High-Speed Shake — Unexcelled for Fine Papers

A FEW years ago we thought of the book, bond, sulphite and kraft machines in terms of low speed. Today, they are thought of in terms of from 500 to 1,000 feet per minute. This has been brought about by improved methods of stock preparation and forming the paper *after* it reaches the wire by the new improved Aldrich high-speed shaking arrangement.

To permit this, the table rolls must be light aluminum, either covered with a sleeve of rubber or a thin brass sleeve, thus getting a non-corrosive surface on the rolls, also a very light table that will easily stand the high speed of the shake.

The weight of the shaking parts of the old-type machine was about three times the weight of a modern one; the modern machine with 10,000 pounds less to shake, permits speed in movement which could not be attained by the older methods.

The *Beloit* Way is the *Modern* Way

BELOIT IRON WORKS, BELOIT, WIS., U. S. A.

The BELOIT

BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS.

FEB 18 1932

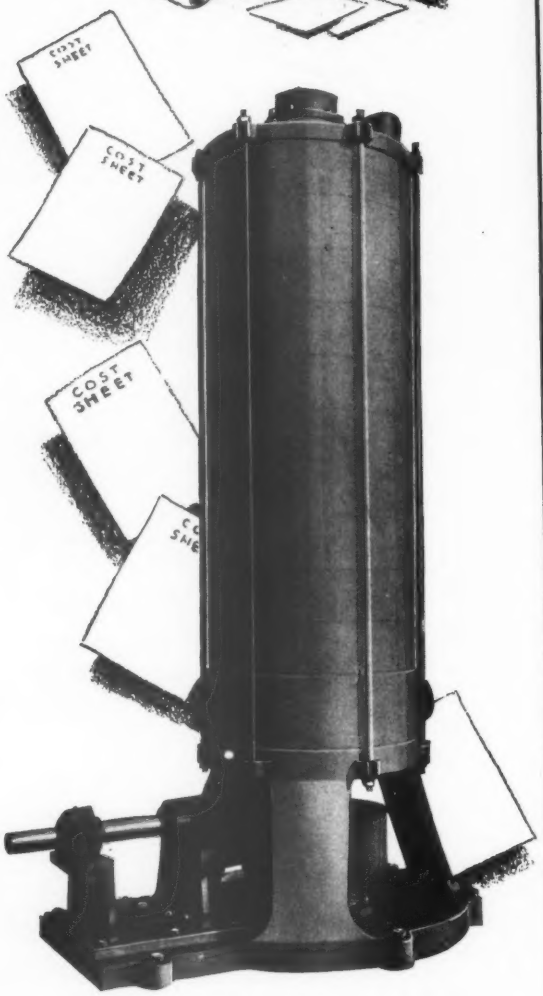
ECONOMY
Is Built In

It is comparatively simple to design a piece of machinery which will improve a manufactured product at an increased or an additional cost. It is another matter to design a unit which fits into the "straight line" of production and not only strengthens that line but consolidates it by eliminating other units of less efficiency, greater floor space and slower speed.

The greatest accomplishment lies in designing a unit which not only does this but which, in addition, effects an actual economy in the direct expenditure of money month by month.

The Fritz Vertical Hydrator fulfills these requirements of a successful installation. Its increased efficiency is a matter of record in every mill in which it has been installed. Its speed of production eliminates as many as six beaters of the old type. It operates on less horsepower per ton of stock, which is money directly saved.

The Fritz Vertical Hydrator is entirely successful in the manufacture of all grades of paper and constitutes a definite forward step in the industry. Correspondence is invited.



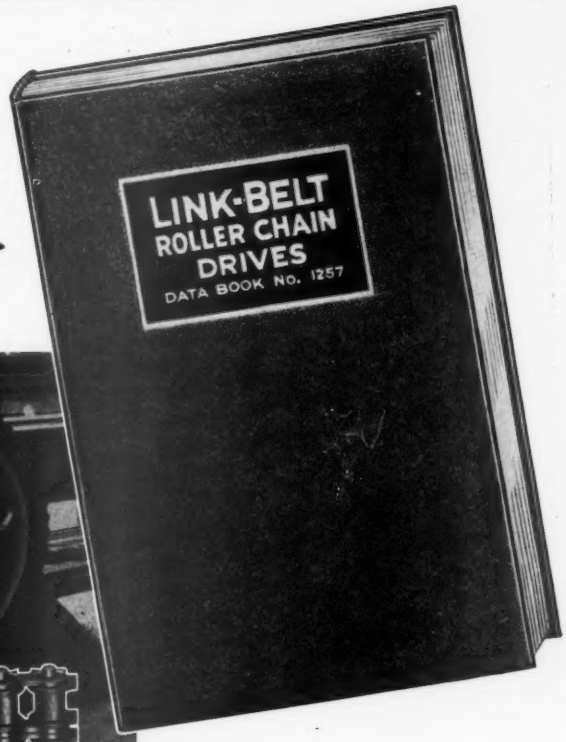
Fully covered by patents and patents pending in the U. S. and foreign countries

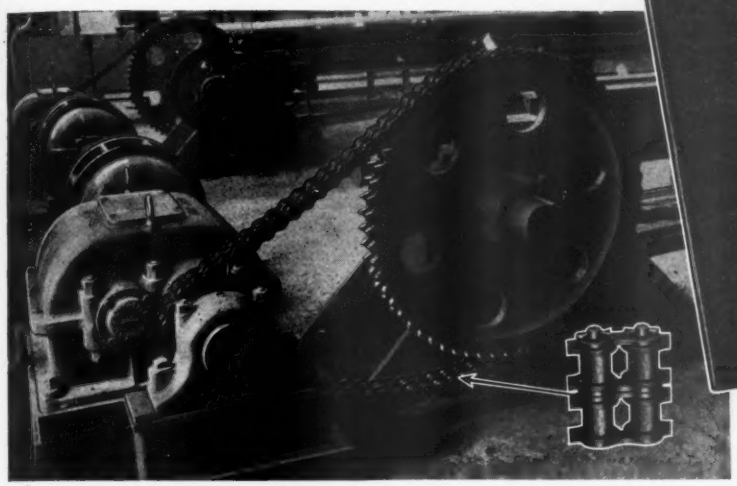
VERTICAL HYDRATOR COMPANY

Pulp and Paper Mill Machinery and Supplies

General Offices: **Tribune Tower** **CHICAGO, ILLINOIS**

Now Ready →





The New Link-Belt Roller Chain Drive Data Book 1257

Makes the selection of the correct roller chain drive a simple and easy matter. Complete with list prices, illustrations and instructions. The most comprehensive data book we have ever published on Roller Chain. 96 pages of valuable facts. Another Link-Belt Service Feature Chains and wheels now carried in stock by distributors throughout the country assuring prompt delivery.

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Please send me a copy of the new Link-Belt Roller Chain Drive Data Book No. 1257.

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Leading Manufacturers of Elevating, Conveying, and Power Transmission Chains and Machinery

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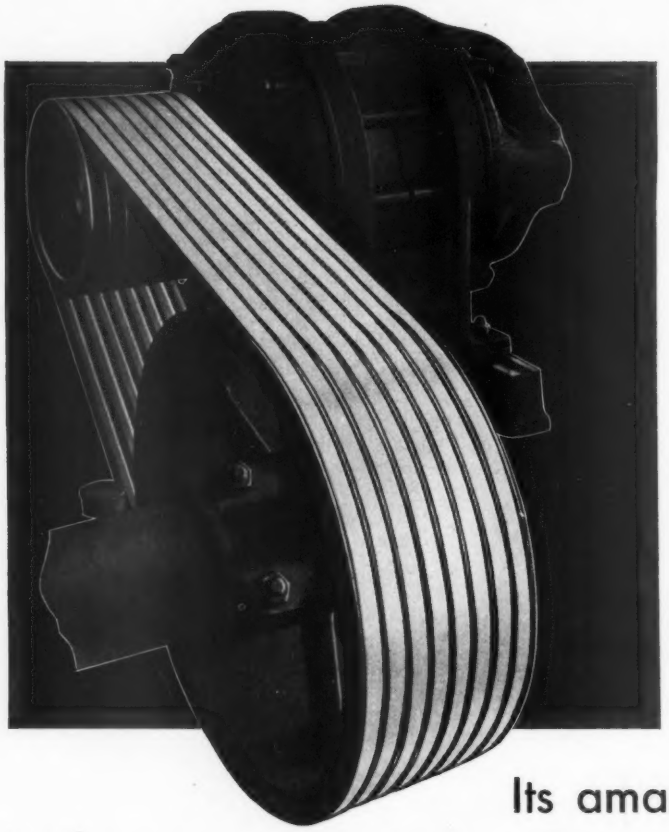


Texrope Belts and Sheaves are carried in stock at points from which the entire country can be served promptly. Standard drives from 2 to 100 H. P. are thus available. Quick delivery can be made on larger drives.

Over 70,000 in service

Its amazingly rapid acceptance is the most Convincing Recommendation for Texrope

APPROXIMATELY four years ago Texrope Drive was announced to industry.

Today over 70,000 Texrope Drives are in service . . . giving more satisfactory performance than any other method of transmission . . . In every industry the trend is definitely toward Texrope.

In plants where flat belts last only a few weeks, Texropes are giving continuous service. Replacements are infrequent and inexpensive.

Where moisture or dirt is unavoidable, Texrope Drives operate with no loss in efficiency. Requiring no lubrication, the maintenance cost on Texropes is practically nothing . . and the drive is always clean, positive and silent.

From the fractional horsepower drives to heavy duty on crushers, mining machinery, oil line pumps and paper machinery, Texrope Drives are giving continuous service at amazingly low cost.

See How Texrope Solves Transmission Problems

Texrope Drive consists of a driving and a driven sheave, grooved for V-shaped endless Texrope belts of rubberized cord fabric. Power is transmitted, with no slippage, by the wedging contact of the belts in the V-shaped grooves. The result is a short center drive with an efficiency of 98.9 per cent, requiring practically no maintenance and infrequent adjustment.

Continuous operation is assured. One or two belts may wear out after long service, but the remaining belts will carry the load until replacement is convenient. With Texrope it is possible to use a higher speed motor, with a consequent saving in cost . . . Texrope is rightly termed "The Perfect Transmission for Every Purpose". It will save money for you. Send for a copy of Bulletin 1228-K.

ALLIS-CHALMERS MANUFACTURING CO., (*Texrope Division*) Milwaukee, Wis.

Builders of Power Machinery Since 1846

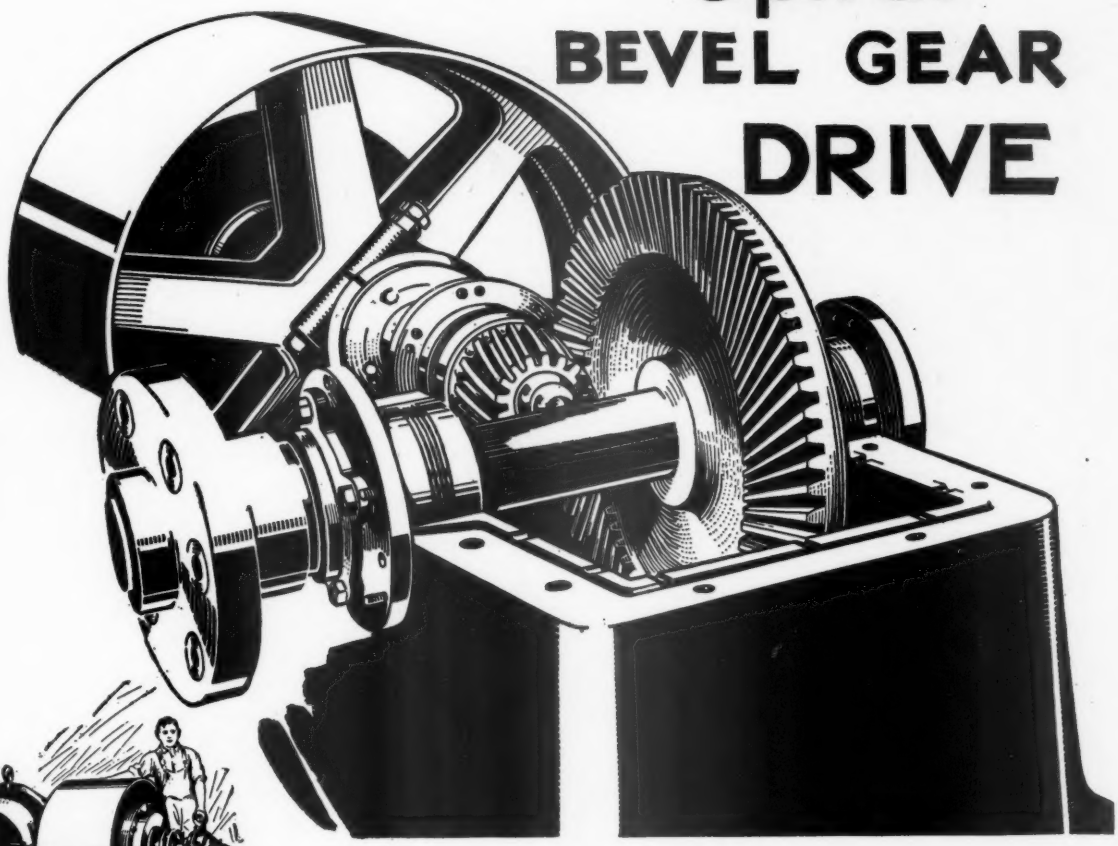
ALLIS-CHALMERS

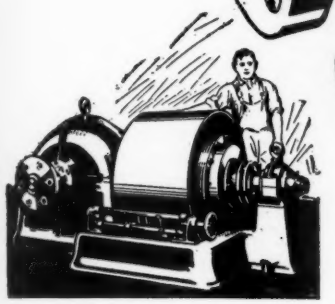
TEXROPE DRIVES

THE PERFECT TRANSMISSION — **FOR EVERY PURPOSE . .**

BLACK-CLAWSON

Spiral BEVEL GEAR DRIVE





The Black-Clawson Co.
HAMILTON, OHIO
Established 1873
Export Offices: 15 Park Row, New York City
Builders of
Highest Quality Pulp and Paper Mill Machinery
Patentees and Sole Builders of
Vertical Dryers and Champion Fourdriniers

The Black-Clawson Spiral Bevel Gear Drive offers to the paper mill certain important advantages that have never been obtained in any other type drive. This is not a challenge, but a statement of fact.

This drive is practical for any type of paper machine—board machine at slow speeds, or on the fastest running Fourdrinier.

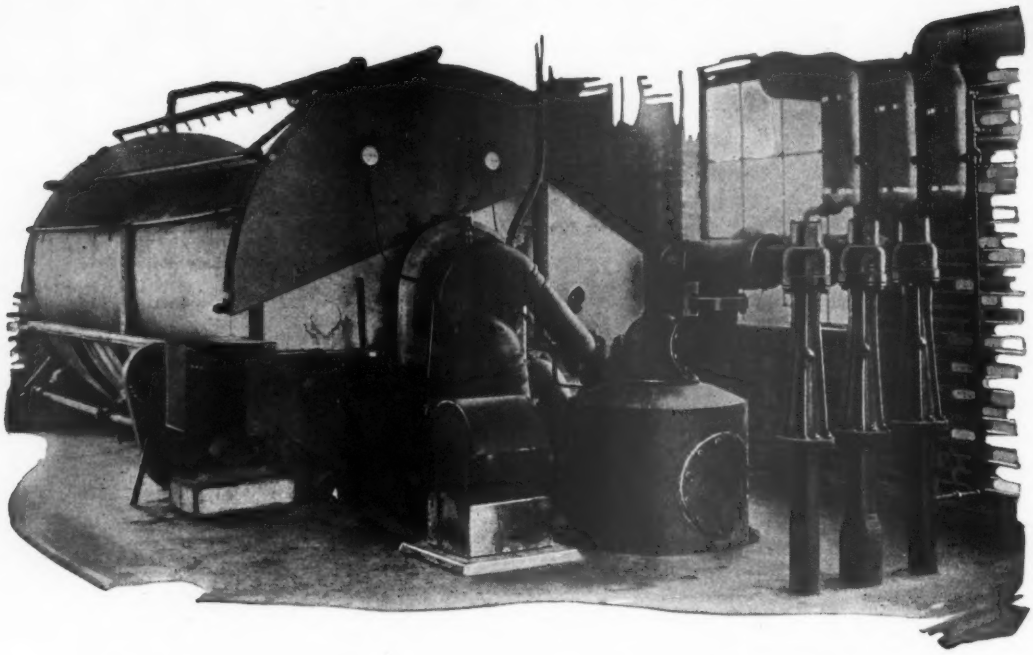
Your drives may be inadequate. If so, they can be replaced with this newer type at moderate cost and without interfering with production.

Have us point out the several outstanding features of superiority hinted at above—and show you just why the Black-Clawson drive is the logical one to use.

Are you receiving the Messenger?

BLACK-CLAWSON
CHAMPION FOURDRINIERS
Built with Machine-Tool Accuracy

When writing to BLACK-CLAWSON CO. *please mention* PACIFIC PULP & PAPER INDUSTRY



Oliver Lime Mud Filter

... look into its merits, if you are not satisfied with your lime or the chemical recovery

FROM two angles, the Oliver Lime Mud Filter helps in the general recovery of the paper mill.

Maximum recovery of lime is accomplished with a minimum of washing. And incidentally the lime is in the best condition for re-burning.

Along with the recovery of the lime is that of the chemicals, so that the over-all efficiency of the chemical recovery is stepped up.

Some sixty Oliver Lime Mud Filters have already been installed. Companies buying them have been well repaid for their investment.

OLIVER UNITED FILTERS INC.

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Federal Reserve Bank Bldg.
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33 West 42nd Street
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Johannesburg, E. L. Bateman
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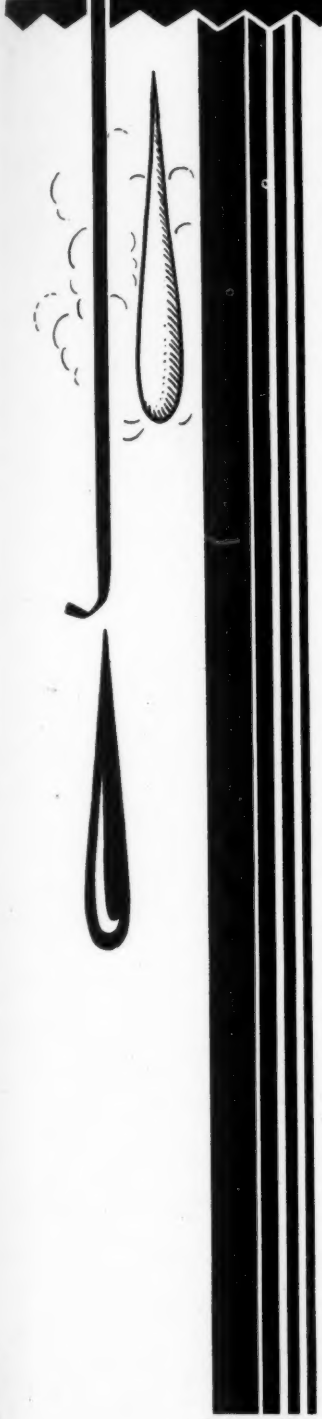
FACTORIES: Oakland, Calif.; Hazleton, Penn.
Cable Address: OLIUNIFILT

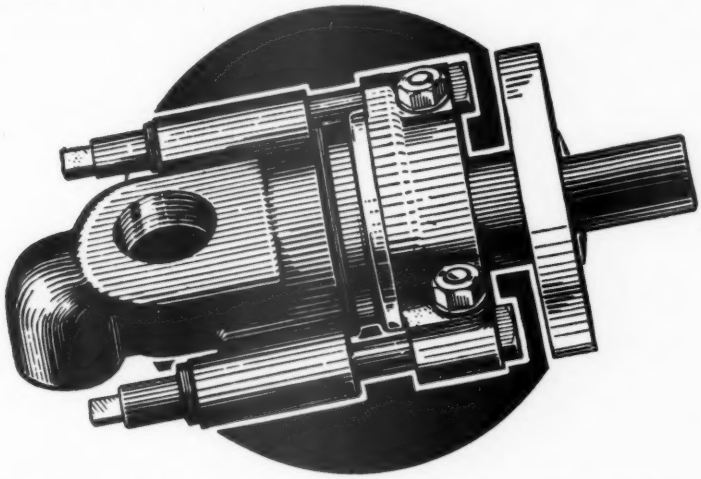
NOT A DROP!
of STEAM OR OIL ▼▼▼



Guaranteed steam tight up to 60 pounds

Shartle oilless steamfits are guaranteed steam tight up to 60 pounds steam pressure. They are also guaranteed to wear longer than other kinds and ALWAYS be tight.

They will save oil---save steam---save labor and save a lot of cuss words.

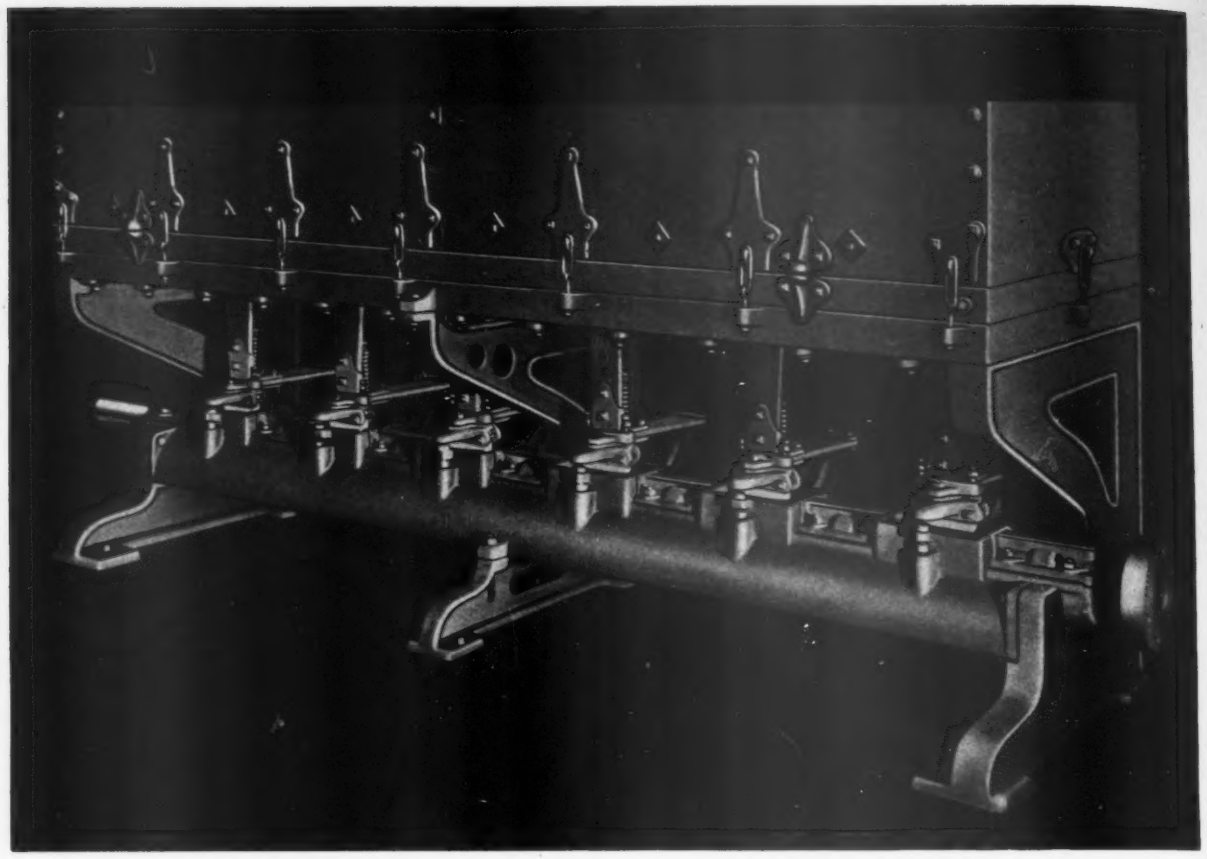


Every month adds to the list of mills trying them out. A rapidly growing repeat business proves that they are doing all we claim they'll do---and we claim a plenty.

How many? One or one hundred? It should be all the same because they're guaranteed with no strings attached.

SHARTLE BROS. MACHINE CO.
Middletown, Ohio

SHARTLE BROTHERS
DIVISION OF THE BLACK-CLAWSON COMPANY



Extra Years of Service *are built into* Appleton Flat Screens

• • • • CLEAN stock—of course—you expect that of Appleton Flat Screens for they have a reputation for efficient operation . . . You can also expect extra years of service from them . . . Their strength and rigidity, their steady performance and unusually long life are the result of correct design and abnormally strong, careful construction . . . These great factors for smoothness of operation and durability build extra years of service into Appleton Flat Screens . . . And now Appleton Flat Screens are built on the Pacific Coast, making them more readily available to the pulp and paper industry of this section . . . . . .

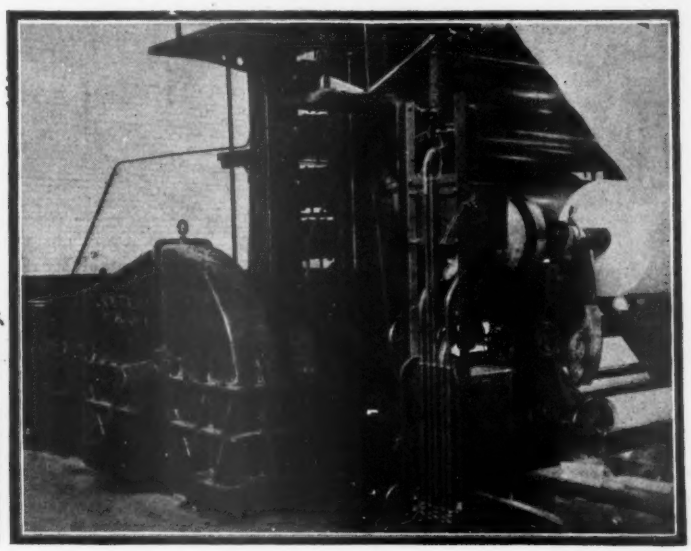
THE APPLETON MACHINE COMPANY . . Appleton, Wisconsin

Appleton Flat Screens and other Appleton pulp and paper mill machinery are Sold on the Pacific Coast by the

PAPER MILL EQUIPMENT COMPANY
Northwestern Bank Building, Portland, Oregon

Built on the Pacific Coast by the

WILLAMETTE IRON & STEEL WORKS
Portland, Oregon



When standard speed reducers won't do

MOST mechanical power transmission jobs can be handled by standard speed reducers. However, so peculiar are the requirements of many drives that the use of standard units is impractical.

For example, a paper company needed a single reduction unit which would permit locating the motor and driven machine on the same side of the unit.

Also, a wire manufacturer needed gear units by which two-spindle and three-spindle wire drawing machines could each be driven by one motor.

A builder of paper making machinery needed a large vertical type reduction drive for a beater.

A coal mining company needed a dual-drive right angle unit for operating two shaker screens with one motor.

A machine tool builder wanted to confine the 98 reduction gear drives on a 24-spindle drill in one case.

These and scores of other drive problems have been solved with units especially designed, but embodying the features which have figured in the success of the hundreds of standard Westinghouse-Nuttall speed reducers now in use.

So don't worry when standard speed reducers won't do. Let Westinghouse-Nuttall power transmission engineers work out the solution. They are as near you as the nearest Westinghouse sales office.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
NUTTALL WORKS PITTSBURGH, PA.
SALES OFFICES AND SERVICE SHOPS IN ALL PRINCIPAL CITIES

Westinghouse

T 30934

For Increased Production in Cutter Rooms

Use "M&W" Cutters, Lay Boys, Backstands

BUILT TO ENDURE

It's a Moore & White Installation.....

The picture shows thirty-roll Backstand used in connection with Moore & White 130-inch Duplex Cutter and Lay Boy. Cutter equipped with seven pairs of slitters and the Lay Boy arranged to lay six piles of paper. Backstand is loaded with thirty rolls of 14-lb. fruit wrapping paper, each roll weighing 2000 pounds. This is one of three installations . . . all in the same mill. Name of mill on application.

FIRST CHOICE ALWAYS

(95% of all Paper Mills in U.S. use "M &W" Lay Boys)

Catalog No. 1 on Request

The MOORE & WHITE CO.
PHILADELPHIA
U·S·A

When writing to THE MOORE & WHITE CO., *please mention* PACIFIC PULP AND PAPER INDUSTRY.

CLEANER STOCK— QUICKER—and CHEAPER

More and more mills are appreciating the quick screening advantages of the Inclined Screen. But *only* the Harmon Inclined Screen—made exclusively by Bagley & Sewall—includes this feature as a construction detail. Far different, in performance, maintenance and low power costs, than an up-ended flat screen. Piston shafts remain perpendicular, giving positive, straight-forward action. Special type cams, with individual vacuum chambers, give a sharp, slot-cleaning blast and a slower, stock-drawing suction. Non-clogging plates give increased capacity, permitting use of finer screens. Shower piping and pumping expense are eliminated. Actual experience proves that the Harmon Screen will pass more stock, cleaner and cheaper, than any other diaphragm screen built.

There's more we'd like to tell you. Write us.

The Bagley & Sewall Co.

Watertown. N.Y.

PAPER MILL MACHINERY

FOURDRINIER—CYLINDER—WET MACHINES

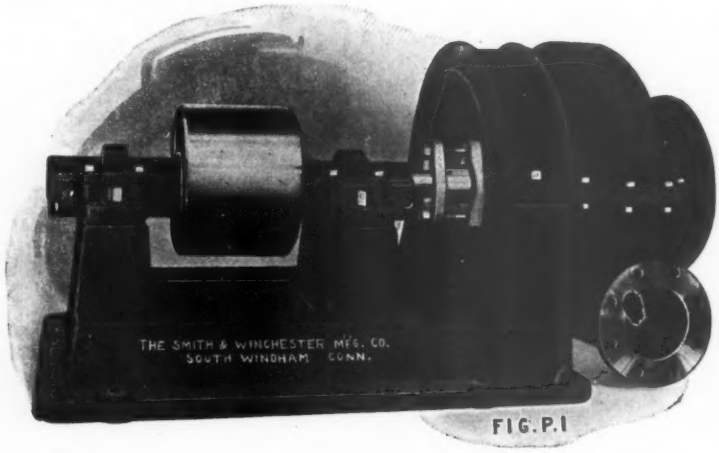
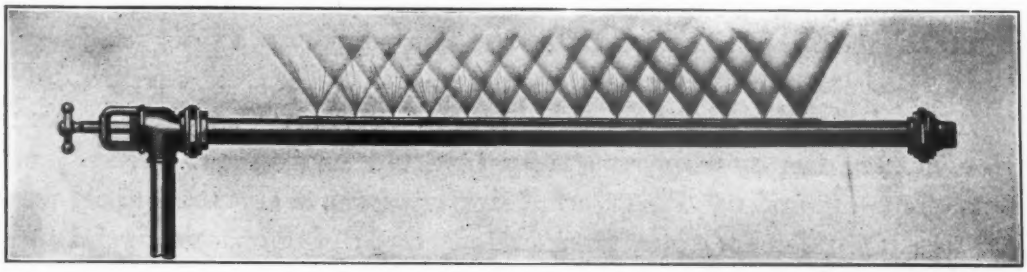


FIG. P.1

The Undercut Trimmer

PAPER BAG MAKING MACHINERY



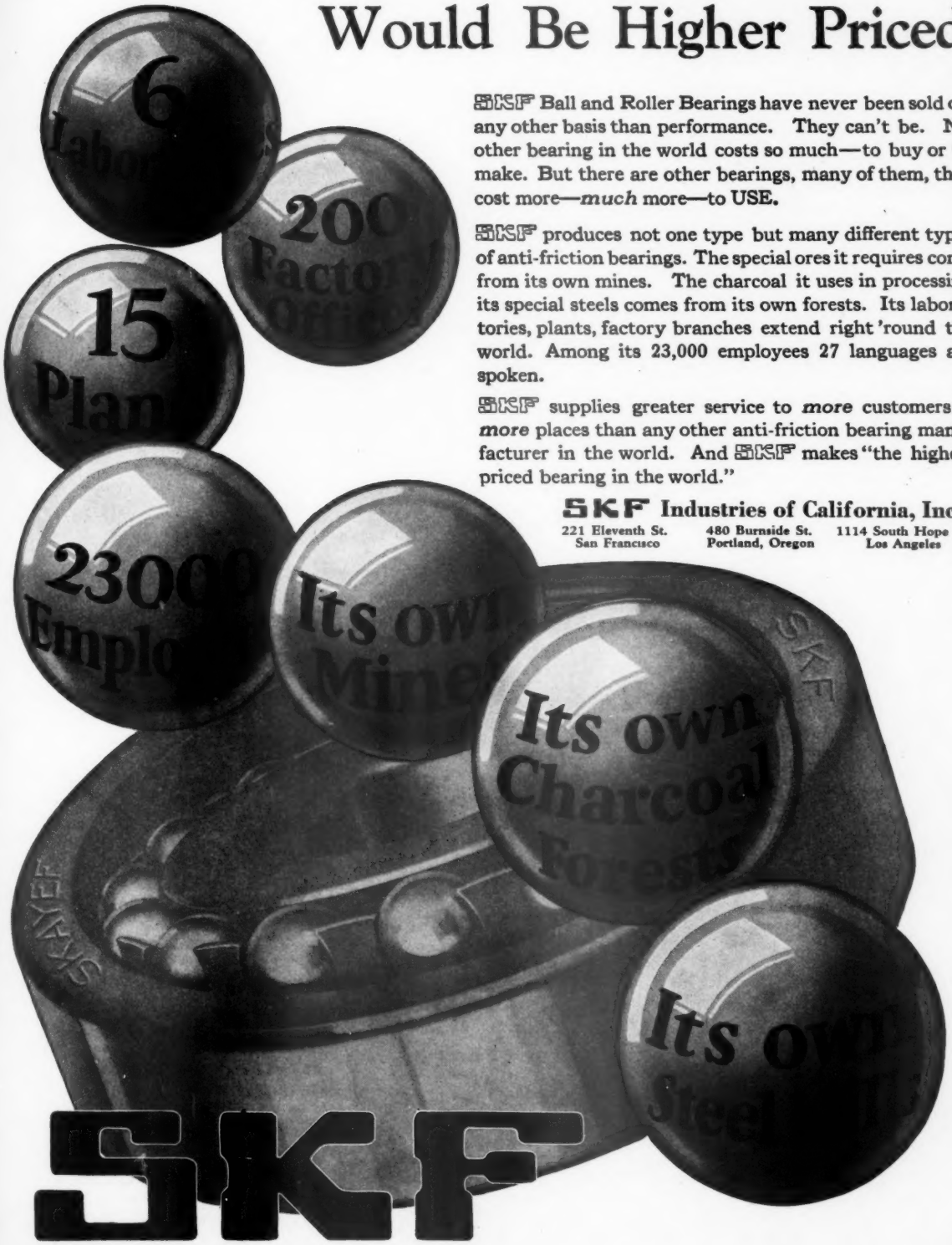
The Rainstorm Shower Pipe

—ESTABLISHED 1828—

The Smith & Winchester Mfg. Co.

Dept. MFP. SOUTH WINDHAM, CONN.

If SKF Wasn't Quite So Big....
"The Highest Priced Bearing in the World" Would Be Higher Priced



SKF Ball and Roller Bearings have never been sold on any other basis than performance. They can't be. No other bearing in the world costs so much—to buy or to make. But there are other bearings, many of them, that cost more—*much* more—to USE.

SKF produces not one type but many different types of anti-friction bearings. The special ores it requires come from its own mines. The charcoal it uses in processing its special steels comes from its own forests. Its laboratories, plants, factory branches extend right 'round the world. Among its 23,000 employees 27 languages are spoken.

SKF supplies greater service to *more* customers in *more* places than any other anti-friction bearing manufacturer in the world. And SKF makes "the highest priced bearing in the world."

SKF Industries of California, Inc.

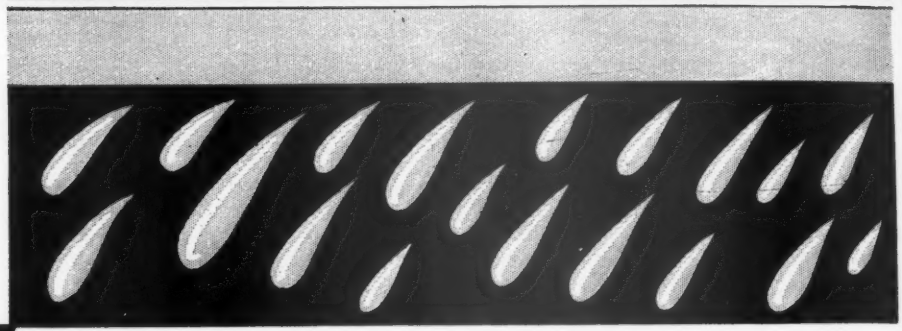
221 Eleventh St. San Francisco
480 Burnside St. Portland, Oregon
1114 South Hope St. Los Angeles

2439

THE HIGHEST PRICED BEARING IN THE WORLD

When writing to S. K. F. INDUSTRIES, INC., *please mention* PACIFIC PULP AND PAPER INDUSTRY

NEW FELT PERFORMANCE IS ATTAINED IN THE PERFECTED TOP-BOTTOM AND PRESS FELTS MADE BY KENWOOD



KENWOOD

WOOL PRODUCTS

Just as Kenwood pioneered the one sided board felt and the Kenwood tanning processes, so Kenwood research has produced another outstanding development in the new Kenwood Tanned Board Felts.

Through a new method of yarn construction, which neither increases the size nor weight of the yarn, four results are achieved.

1. ***Greater Strength***
2. ***Longer Life***
3. ***Greater and more enduring openness***
4. ***Improved finish***

The Kenwood tanning processes, combined with this new development, represents the greatest advance in the economy of board felt performance.

F. C. HUYCK & SONS

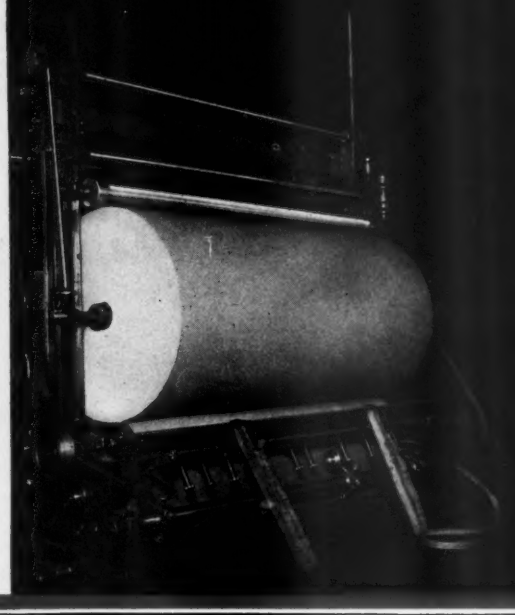
KENWOOD MILLS, ALBANY, N. Y.

KENWOOD MILLS LTD., ARNPRIOR, ONTARIO

KENWOOD FELTS

When writing to F. C. HUYCK & SONS *please mention* PACIFIC PULP AND PAPER INDUSTRY

LANGSTON *slitters*



TWENTY years from now the 1930 Langston Slitters will be operating economically for their owners. Just as today, Langston Slitters built in 1910—and some even older—are turning out clean, even, firmly wound rolls. Intelligently built, sturdily built, of superior materials—Langston Slitters are ready to produce 1930 profits for you. And they will be doing the same thing in 1950.

SAMUEL M. LANGSTON COMPANY
CAMDEN, NEW JERSEY

shear-cut clean-cut

B. A. Van Wormer

"VAN" *wouldn't have a phone in the house!*

No sir, Mr. B. A. Van Wormer, sawmill foreman of the Mt. Emily Mill at La Grande, Oregon, likes his night's sleep all in one piece. And he always maintained that if he was easy to reach, the mill would be calling him up at three A. M. of a winter morning to know what to do to stop such-and-such from squeaking.

It's all changed now. Where "Van" uses Shell Mill Lubricants, things don't squeak at three A. M. So he can patronize the telephone company without losing sleep over it.

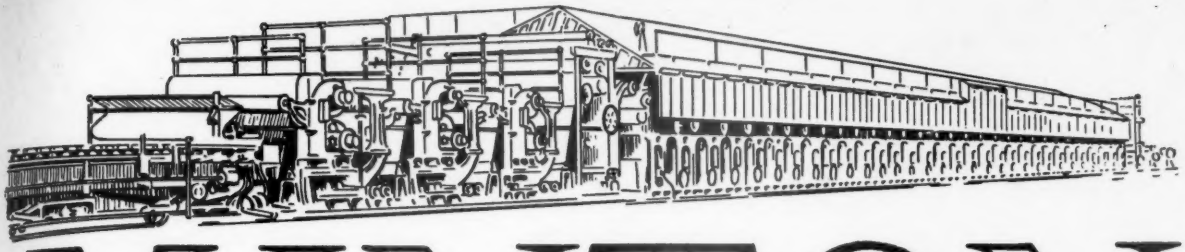
Ed Piper, the planing mill foreman, was also full of praise for Shell lubricants, but pretty bashful about posing. We had to let him wear his hat when he finally consented. Ed, you see, is as short on hair as he is long on judgment.

Ed Piper

The golfer chap isn't the national amateur champion—though they say he's pretty good. He is Norman W. Frees, purchasing agent of Mt. Emily Lumber Company. Mr. Frees told us that the half dozen big Caterpillar tractors the company operates on the Grande Ronde River at the logging camp all burn Shell 400, the "dry" gas.

Norman W. Frees

SHELL MILL LUBRICANTS



THE MINTON VACUUM DRYER

ANNOUNCEMENT

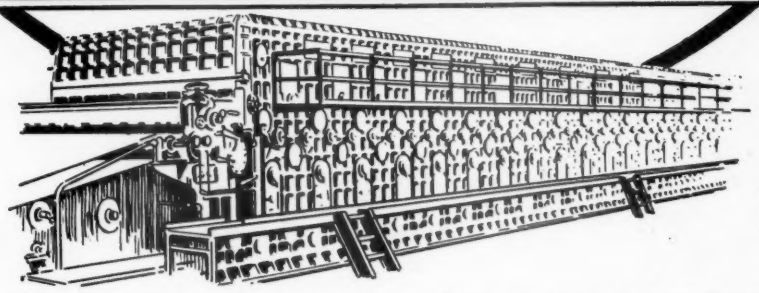
WE are now prepared to build and install the Minton Vacuum Dryer, a step in line with our practice to provide every genuine tested improvement in our paper-making machines.

RICE, BARTON & FALES

INCORPORATED

WORCESTER, MASSACHUSETTS

PAPER MAKING MACHINERY SINCE 1837



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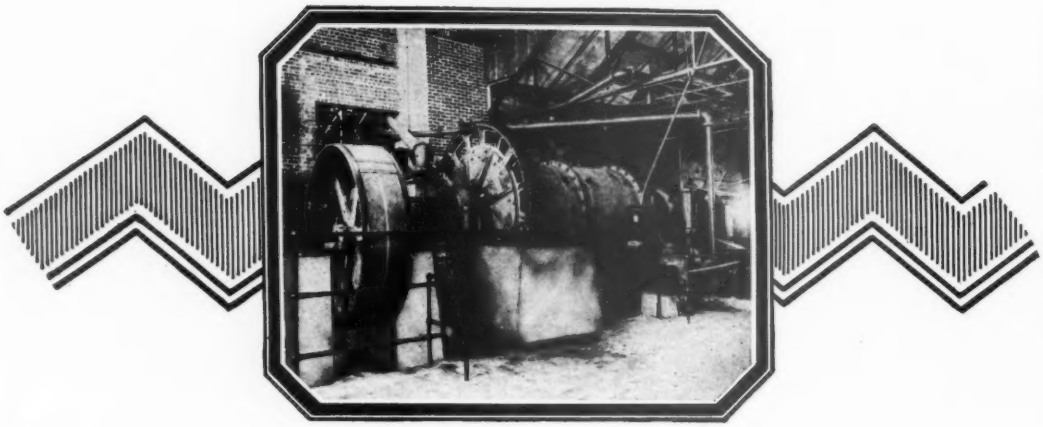

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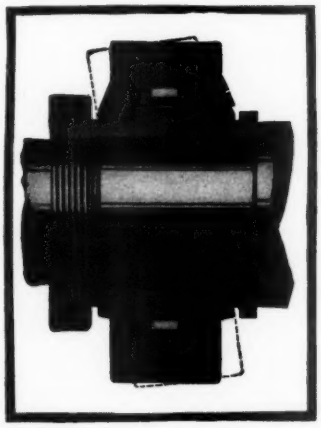

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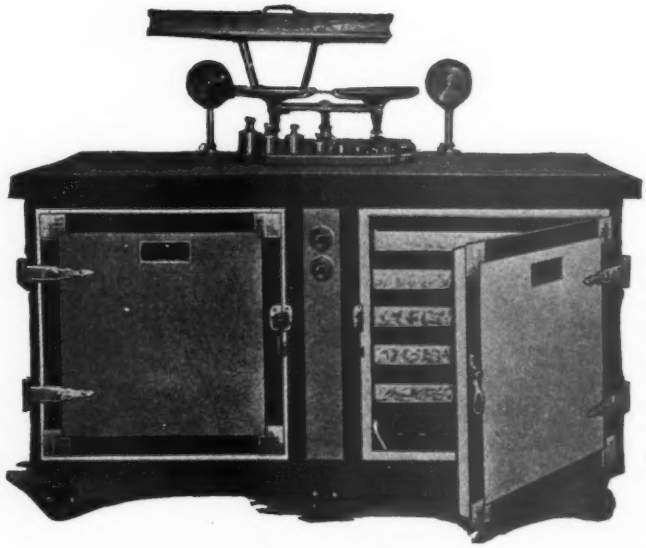

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JANUARY, 1930

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L. K. SMITH, Manager

LLOYD E. THORPE, Editor
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EDITORIAL

There is a bit of news of significant importance in the current issue. One of the best known Eastern manufacturers of high grade papers, located in the famous paper state of Maine, has entered into a long-time contract for pulp supplies with a new bleached sulphite pulp mill now building on the Pacific Coast.

Such news is at once an indication that the growing demand for pulpwood is forcing the Eastern mills to turn to the abundant forests of the Pacific Coast, and an acknowledgment that Pacific Coast woods can be converted into the high grade pulps to meet the most exacting demands.

Two railroads have been given official permission to extend their lines into the vast pulp timber resources of the Western Olympic peninsula. It is believed in many quarters that the opening up of this region will be a considerable incentive for the establishment of more pulp mills to make use of this new timber source.

As has been stated in this journal heretofore, to open the Western Olympics for straight lumber production without heed of the pulp values will be to commit one of the greatest economic crimes.

Pacific Coast timber interests may do well to turn from shiplap and shingles to silk sox and sundries, meaning more specifically artificial silk—Rayon—as a market for wood. Some interesting statistics on the startling growth of this new textile are presented in this issue.

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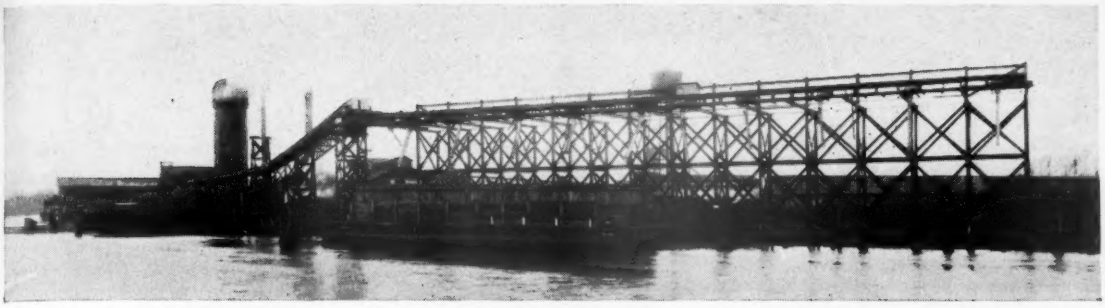


At the Canyon chipping plant the company has worked out an unusual conveyor system.

A Business Founded on Sawmill Waste

IN converting the tree into merchantable products the sawmill begins with the log and reduces it to numerous shapes and sizes ranging widely from structural timbers to lath and shingles, but it never alters the mechanical structure of the wood itself . The line here is squarely defined. Further, the lumber mill has the problem of cutting out rectangular products from round raw material, a problem which at the very outset brings up a serious problem of waste.

To circumvent this waste the lumber industry has devised many types of remanufacturing, all of which have been designed with the single purpose of bringing more revenue out of the single log and of reducing the enormous flow of material going out on the conveyor to the refuse burner. But unless this utilization could be effected by some mechanical process without altering the mechanical structure of the wood the sawmills have been quite helpless.

Since the inception of lumber operations on a large scale on the Pacific Coast, and particularly in recent years, the problem of resulting waste and its utilization has been of vital importance to every operator. More than this, the tremendous increase in lumber production in these recent years, with the corresponding increase in the quantity of sawmill refuse, has tended to bring the problem more forcibly than ever before the lumber operators.

With particular respect to the Douglas fir region of the Pacific Coast there has been an important contributing factor in this waste problem. Douglas fir and Western hemlock are usually to be found in mixed stands so that the taking out of the Douglas fir has necessitated the concurrent logging of the hemlock mixed in the stands. But Western hemlock has experienced, as compared to Douglas fir, a much poorer reception in the lumber markets—much of which is undoubtedly due to unfounded prejudices—and to this cause may be attributed much of the present sawmill and logging wastes of hemlock.

It is safe to say that untold quantities of good, hard, serious thought have been expended upon that short span of conveyor chain running from the saws of the lumber mill out to the waste burner. No doubt many have thought that there were great values in that conveyor chain upon which could be built a business, but it remained for the International Wood & Sulphite Co. to found this new industry.

There have, of course, been some other examples of converting waste to pulp use, but the business of the International Wood & Sulphite Co. is unique in the co-ordinating of scattered sources of waste and making available to pulp mills elsewhere two commodities converted therefrom, chips and hogged fuel. The company itself makes no pulp or paper.

The Basic Idea

A few years ago the woodpulp industry took on new life in the Pacific Northwest. There began to be much casting about for wood supplies. The pulp industry, not dependent upon any mechanical structure of the wood, but interested only in the fibres or heat values therein, knew that there was much good potential pulp material riding out on these many Pacific Coast sawmill refuse conveyors, but it had reached no solution for retrieving these values. It is of significant interest, however, that the organization which conceived a practical method of capturing these pulp values from the waste conveyors was one which had been schooled in the requirements of the pulp mills.

The evolution of the International Wood & Sulphite Co. might be said to have come about through a desire of federal and state governments to conserve the natural timber resources, combined with a desire on the part of the pulp and paper industry to convert sawmill wastes into commercial values.

After various experiments the basic idea was formulated that to successfully convert sawmill waste into profitable pulp chips and hogged fuel the operation must cut out all useless transportation and handling and pick out what wood it wanted right at the sawmill. It might be said therefore that the International Wood & Sulphite Co. has been built around the sawmill waste conveyors of the Pacific Northwest.

The company recognized at the outset that what the pulp mills wanted in the way of chips was not just quantities of wood reduced to small particles, but a definite article, namely, carefully cut and screened chips from sound clean wood. In its business it has therefore from

the very beginning produced these chips under the competent supervision of men who understood the pulp mill's requirements.

One gathers from the opinions of some in the lumber industry that this point about pulp chips being a definite commodity is apparently greatly undervalued. Reduced to logic, it is easy to see how the lumber fraternity might possibly analyze chips on purely mechanical lines and consider them only as so many small bits of wood. The pulp mill superintendent, however, has very definite ideas on what chips ought to be, for in this group the reasoning turns from the mechanical to chemical and the things that interest are such factors as uniform size and shape of chips with the attendant bearing of these qualities on penetration time of the cooking liquors. It is perhaps safe to say now, however, that the Pacific Coast lumber industry has as a whole undergone quite an extensive period of learning in the past few years and is today much more appreciative of these differences.

Results of Experiments

After much experimenting the first chipping plant was eventually established in connection with the Reed Mill Co. at Shelton, Wash., and the International Wood & Sulphite Co. came into being. That was in May, 1926.

In the three and one half years the company has been in existence the organization has branched out rapidly and today operates 14 plants for the production of pulp chips and hogged fuel and is now building its fifteenth. This latest one will adjoin the Clark-Nickerson Lumber Co. at Everett, Washington, and is scheduled to be in production in March.

These 15 plants will, when all are in operation, have capacities sufficient to produce in an 8-hour shift more than 1100 units of pulp chips and about 650 units of hogged fuel. Some mills of course are operating more than one shift per day.

A further idea of the magnitude of this business may be had in a glance at the company's production records for October, 1929. In that month the company produced a total of 45,462 units. Of this amount there were 30,320 units of pulp chips used in the manufacture of various grades of chemical pulp and 15,142 units of hogged fuel, used in steam power plants.

For practical purposes a "unit" of chips is considered the equivalent of a cord of sawmill refuse.

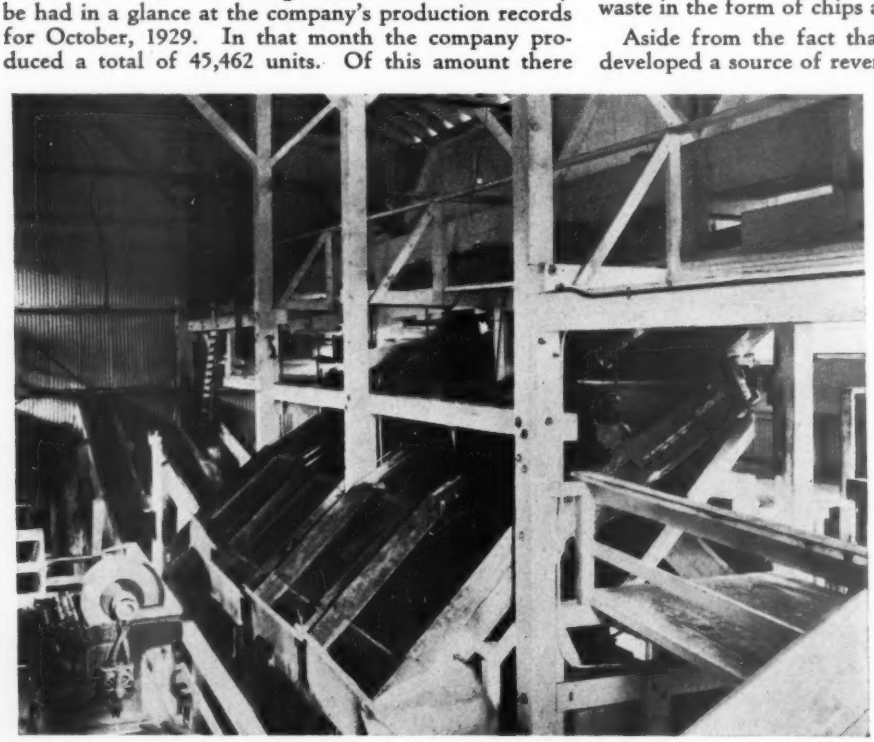
These figures are subject to a slight qualification since the company in one or two instances uses some round wood to round out its activities. At Neah Bay, Washington, for instance, the company last year established a chipping plant to make chips direct from the forest. The company had previously been taking out cordwood here, largely for groundwood requirements, and the chipping plant was put in to round out the operation.

Significance to Industry

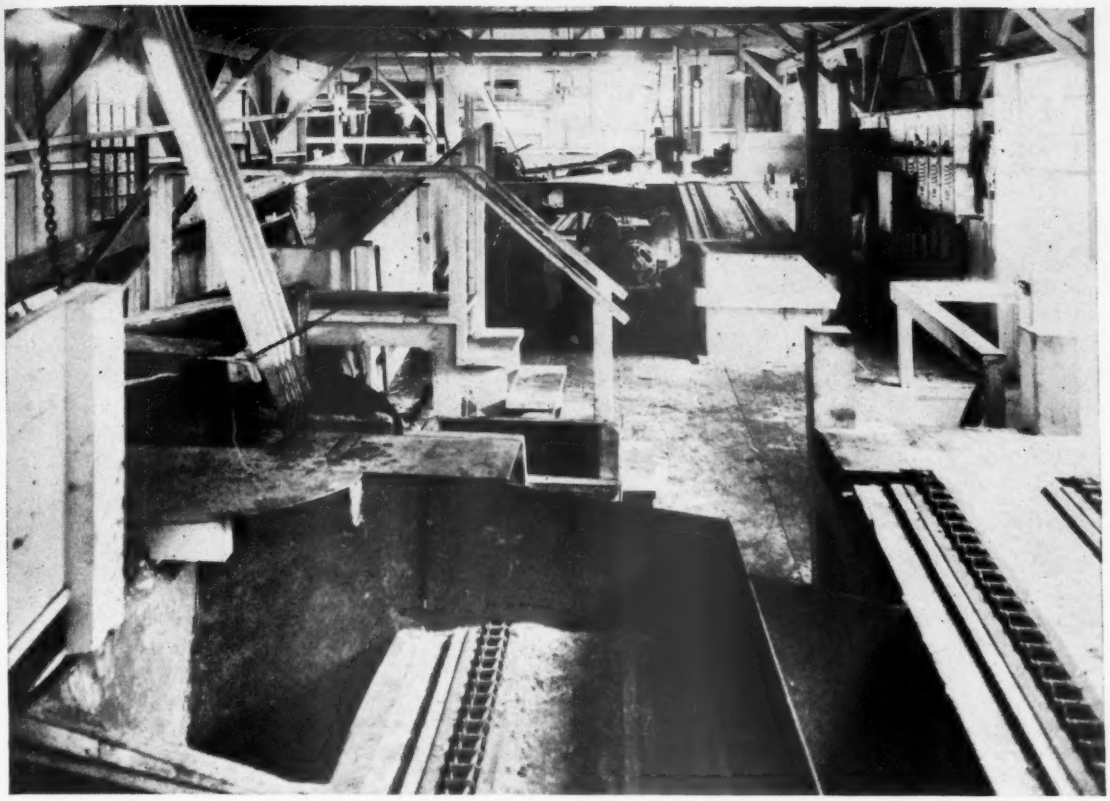
What, then, has this new industry meant to the wood-using industries of the Pacific Northwest. On an annual basis it means that approximately 425,000 cords of wood suitable for the production of chemical pulp are being saved from an uneconomic end in the refuse burners of the Pacific Northwest sawmills every twelve months. It means, in terms of revenue to the sawmills, that a sum in excess of $1,000,000 has been moved from the red to the black side of the ledgers of these collective sawmills in a twelve-month period. It means that new jobs have been created for a force of 325 men to operate these plants, building a new payroll which runs about $500,000.00 annually. It means that, in the period of a year, if this quantity of pulp chips were to be drawn from the forest instead of from the refuse piles, that about 250,000,000 feet b. m. of standing timber would have to be sacrificed against a future time when the industry would be in perhaps greater need of these growing trees.

The above facts would indicate that sawmills which are today operating without a chipping plant in conjunction are at a disadvantage on a competitive lumber market with those mills which are disposing of their waste in the form of chips and hogged fuel.

Aside from the fact that this new outlet for refuse developed a source of revenue which is today an impor-



A battery of four LEAHY chip screens in one of the plants of the INTERNATIONAL WOOD & SULPHITE CO.



This view of the barking floor of one of the newest plants gives a general idea of layout

tant item on the sawmill's balance sheet, the knowledge that any sound merchantable wood passed to the main conveyors in the direction of the burner would be picked out and converted into chips has necessarily made the sawmill operation more flexible. Expensive remanufacturing processes have been reduced to a minimum and the chipping plants have provided a final "safety valve" placed at the discharge end of the several sawmills.

Investment Important

To erect and equip chipping plants to handle, clean and convert sawmill refuse into suitable pulp chips and hogged fuel involves a substantial expenditure. For this reason the International Wood & Sulphite Co. has entered into long-time contracts with lumber mills, these contracts extending from 10 to 20 years. In undertaking these investments the company has taken into consideration the following essentials:

A. Timber and log supply sufficient to insure the operating life of the sawmill for ten years or more.

B. The capacity of the sawmill should be not less than 100,000 F.B.M. per 8-hour shift.

C. The financial structure of the lumber company must be satisfactory to insure a continuity of operation.

D. Location of sawmill and accessibility to water or rail transportation.

Sawmill refuse, as a source of raw material for the manufacture of chemical pulp, can only be purchased on a basis competitive with forest wood, and offers the advantage of making available a fixed amount of material at a given point for a period of years. To reclaim this a certain investment must be made which can be amortized over a period of years. Curtailment in the lumber industry during the past three years has somewhat affected what would ordinarily be a fairly uniform production of raw material at the various points at which this company operates its plants, but even so, production has been maintained at a fairly high rate.

Operations of the International Wood & Sulphite Co. cover Washington and British Columbia, giving immediate rise to a considerable problem of transportation. At present the company lets out the necessary tug and barge work to transportation companies on contract. Present production demands continuous use of 38 big scows and by next March this number will be increased to 44.

These scows have specially constructed side-walls from 12 to 14 feet high and carry from 225 to 325 units each. Plans are now being considered for some specially designed covered scows for the special use of transporting chips destined for mills making high grade bleached sulphite and soda pulps, the covers serving to keep the chips free from cinders and other foreign material.

Aside from the barges required, the company has 38 railroad cars for handling the output of the rail plants. These are of the gondola type, with hopper bottoms and equipped with a superstructure of the company's own design. Each car has a loaded capacity of 18½ units.

It is natural to expect that in building 15 plants that

the company has evolved standardized methods of production. One finds, therefore, that these chipping plants are all pretty much of a pattern with the possible exception of minor improvements made in each new plant as experience has perfected practice.

In effect the International Wood & Sulphite Co. builds its chipping plants straddling the refuse conveyor. It uses a sturdy mill-type construction building with corrugated sheet iron walls. The interiors of the plants are whitewashed to improve lighting conditions and automatic sprinkler systems are installed for fire protection.

K. O. FOSSE
President
of the
INTERNATIONAL
WOOD & SULPHITE CO.

Specific Standardized Methods

The standardized design of the chipping plants has been developed by the International Wood & Sulphite Co. in cooperation with James Brinkley of the Webster-Brinkley Co., Seattle, the latter named company having supplied the major portion of the equipment in all the plants.

The company has its own men at the main conveyors of the sawmills to select the suitable pulpwood pieces from the refuse material. The material consists of slabs, edgings, trimmings and similar pieces. The poorer refuse continues on the main conveyor to a hog for reduction to fuel in those plants where hogged fuel installations have been made.

Many pieces of clean, sound wood come out on the main conveyor ready to be routed to the chippers without further handling. Other pieces with bark or other defects which must be removed are passed through a series of three machines of special design which reduce the larger pieces to cants of suitable size. Small barkers with planer heads are provided where some touching up is needed. The layouts are made so that material can be drawn off the main conveyor at several places, according to the cleaning treatment the wood requires. In general, the whole process is laid out to make it largely a continuous one with specialized single operation stations, and chutes which permit the wood to be dropped to the chipper conveyor as the cleaning operation is completed.

Knot saws are installed in those plants making chips for bleached sulphite in order to remove the "block knots" which are detrimental in high grade pulps.

All the clean wood is concentrated on a chain conveyor and fed automatically to Carthage chippers. The company has standardized on the Carthage chipper and with the completion of the new Everett plant will have 24 of these units in operation.

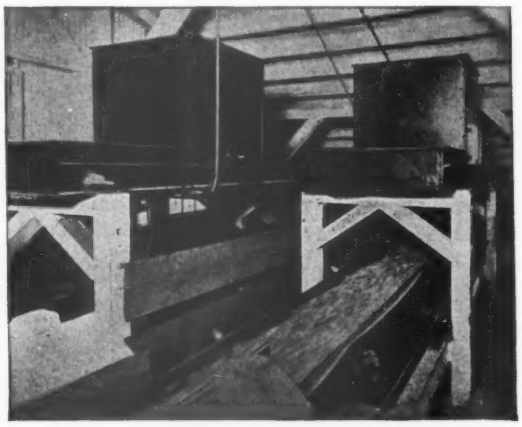
From the chippers the chips are carried up to be distributed over batteries of Leahy screens for refining. Here again it is interesting to note that the company has standardized on one make of screen and will presently have 48 Leahy screens in service.

Accepted chips are conveyed on rubber belting to scows, cars or direct to pulp mills in some cases, while the rejected fines feed on to the rubber belt which carries the hogged fuel.

An interesting example of rubber belt conveyor is to be found in the company's plant established at the Canyon Lumber Co. at Everett, Washington. In this instance the belt conveyors are carried to the scows over a log pond and slough on a structure suspended on steel cables. The conveyors are in this case protected from the elements by means of sheet metal covers.

At Hoquiam two rubber belt conveyors—one for chips and one for hogged fuel—are carried directly from the chipping plant to the pulp mill of the Grays Harbor Pulp & Paper Co. in an enclosed shed approximately one quarter of a mile long. At Hoquiam the chips are measured in transit on a Merrick Weightometer, the moisture content of the conveyed materials being computed from samples taken periodically.

Plant standardization has insured a reasonable uniformity of material produced. Chips from the International Wood & Sulphite Company's plants are now going to mills making high grade bleached and unbleached sulphite, news grade sulphite and sulphate pulp for kraft paper. Production is closely supervised by men with a knowledge of pulp mill requirements, this supervision being directed from the company's general offices in the Northern Life Tower, Seattle.



These two Merrick Weightometers weigh both hogged fuel and chips en route from chipping plant to pulp mill

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Powell River Cares For Employes

The Powell River Co. Ltd., through an organized sick benefit association, operates a modern 35-bed hospital at its mill and town site at Powell River, B. C. There is a medical superintendent, matron, six nurses, housekeeper and kitchen employes. Hospital and medical attention is given to the employes free, and sick benefits of $20 per week for 13 weeks and $10 per week for the succeeding 13 weeks are provided. The employes pay into the sick benefit fund $2.50 per month, and to this fund the company adds substantial amounts.

Photo copyright by F. W. Hooper

The plant of Pacific Mills, Ltd., at Ocean Falls, British Columbia

Completing Major Improvements at

PACIFIC MILLS, Ltd.

AN improvement program at the Ocean Falls plant of Pacific Mills, Ltd., is nearing completion, which will not only modernize the mill in every respect but will maintain the established reputation of this large producer of newsprint, wrapping, tissue and specialty papers as one of the leading mills on the Pacific Coast.

Current improvements include replacement of groundwood mill structures, screening and deckering equipment, addition of five three pocket grinders, new chemical pulp screen room and equipment, additional beating capacity and a modern high pressure steam unit consisting of boiler and turbo-generator. Increased water storage facilities have been provided, which will insure an adequate supply for year around operation.

Grinding Equipment

Present grinding equipment consisting of 29 three-pocket grinders driven by six water turbines is being augmented by five three-pocket grinders driven by a 2,500 h.p. sychronous motor. Old as well as new grinders are being housed in a modern concrete building 85 by 137 ft., which replaces the former grinder room of wooden construction. This unit was completed without interruption to groundwood mill operation, as were the other modern units included in the reconstruction program.

A mezzanine floor 21 feet wide extending the full width of the building provides space for locker room, showers, foreman's office, heating system and millwrights shop. A five-ton hand operated crane is provided for grinder service. Pulpwood is delivered to grinders by flume and pulp discharges into troughs. A rearrangement of chests is being made to permit installation of a new inclined bull screen of latest design.

The new groundwood screen and decker building is a three-story reinforced concrete structure 40′x180′ on the top floor of which are located six knotters, a 21′x40′ riffler and 14 Quiller centrifugal screens.

Accepted stock passes from the Quiller screens to deckers and wet machines on the second floor. Rejected stock from the primary screens is rescreened by five centrifugal tailing screens located on a mezzanine floor between the second and third floors at the west end of the building. The basement contains stock chests, Berkshire refiners for rejects from knotters and tailing screens and pressure pumps for bailing presses.

This arrangement permits of a gravity flow from knotter head box on the top floor to decker chests in the basement and eliminates unnecessary pumping between processes. Thorough screening and riffling of pulp will eliminate sand and dirt, thus insuring a clean product.

A new reinforced concrete chemical pulp screen building, 54′x126′, is under construction adjoining the south wall of the present beater room and the west wall of the new groundwood screen building. This structure will house screening and deckering equipment for sulphite and sulphate pulp as well as size cooking equipment.

Machinery of New Design

As in the groundwood screen building, the flow is by gravity from knotters on the top floor to chests in the basement and machinery is all of the latest design for efficiency of operation and cleanliness of finished

product. Wherever possible individual motor drives are being installed on both old and new equipment, thus modernizing the installations.

Additional beating capacity for kraft papers is provided by six new beaters in the beater rooms, space for which is made available by removal of sulphite screening equipment to the new building. The new units will be driven in pairs by 250 h. p. motors through Texrope drives, and the installation provides ample beating capacity on the two machines which now manufacture kraft papers.

The present boiler plant is being increased by the installation of a 100 h. p. Stirling Type 390-pound pressure boiler located in a reinforced concrete addition to the present boiler house. This unit is provided with a setting suitable for efficient firing of fuel oil from the rear and hogged fuel in the front. The mud drum is set 20 feet above the boiler room floor in order to provide sufficient furnace volume and long flame travel before reaching the tubes, thus insuring proper heat liberation in the furnace.

The front fuel firing equipment consists of chain feeders for uniform feeding of hogged fuel to inclined step grates and the rate of feed can be regulated as desired. A constant depth of fuel bed will be maintained at all rates of feeding, thereby reducing the amount of excess air entering the furnace through holes in the fire and insuring high CO_2 in the flue gases.

Installation Complete

The installation includes water walls, integral economizer and air preheater which permit of operation at 250 percent of rating and over. All hogged fuel formerly burned at the sawmill boiler house will be conveyed to the new unit and burned efficiently, supplemented by such oil as is required to maintain a high rating. Provisions have been made for induced draft and cinder removal.

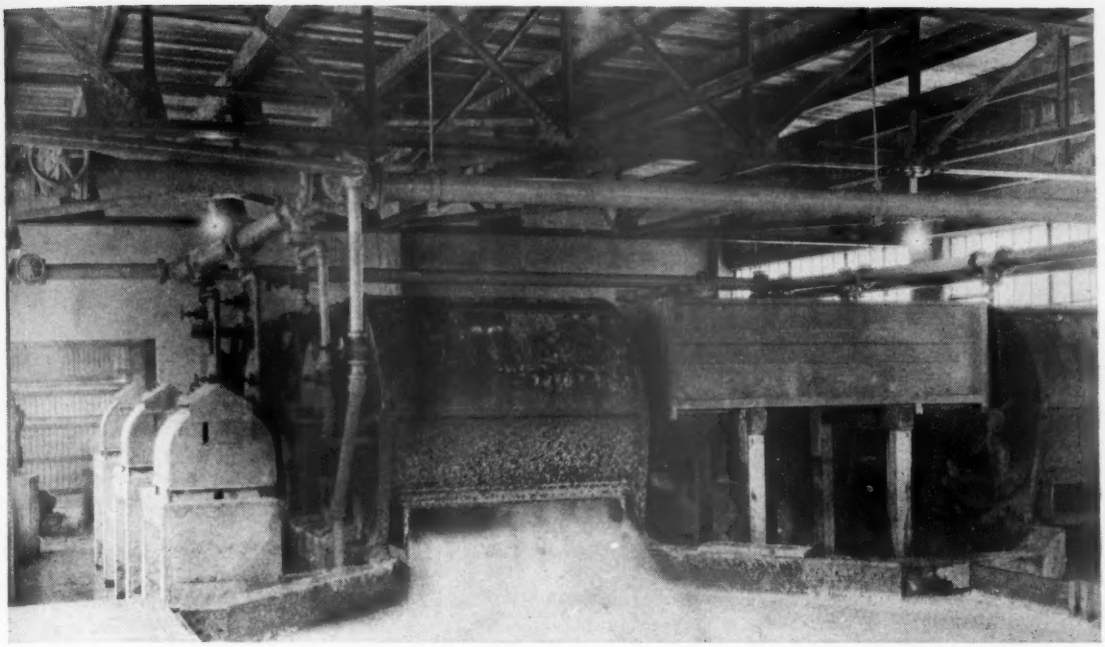
A new 3750 k.v.a. turbo-generator unit will be housed in a reinforced concrete building, 24′x55′, located adjacent to the boiler house. Steam from the high pressure boiler is piped direct to this unit which is designed for 350-pound gage at the throttle and permits of automatic extraction at 135 to 150 pounds for cooking and 30 to 35 pounds for drying and heating, as well as development of full load on a straight condensing operation, if desired. Condensing water will be utilized for showers on the paper machines, thus conserving water and by virtue of the heat contained, will improve running conditions of stock on the machines. Power distribution system for the entire mill is being modernized and two new substations have been provided.

A. B. MARTIN
President
PACIFIC MILLS, Ltd.

A tunnel 550 feet in length and 7½ feet bore has been drilled from Martin Lake to Link Lake, making available the additional water from Martin Lake for power purposes. Installation of 9-ft. Taintor gates at the dam increases the storage capacity of Link Lake by 32,000 acre feet, which is equivalent to 76 sec. feet continuously per year or 900 h.p. through the present wheels. The additional storage facilities which have been provided will guard against an enforced curtailment of production as was experienced for six months during the past year due to lack of water for power generation.

V. D. Simons of Chicago is the engineer in charge of this development.

Quiller vertical screens in the process of erection at Pacific Mills.



Showing the knotters in the new groundwood screen building at Pacific Mills in operation

Railroad To Open The Olympics

Issuance of a permit to construct a railroad north from Grays Harbor to the north bank of the Hoh river by the Northern Pacific and Union Pacific roads, and another to the Port Angeles Western to construct a road from South Forks to the Hoh river from the north by the Port Angeles Western road, by the Interstate Commerce Commission in December, marks what Grays Harbor and other Northwest pulp men see as the opening of a new and vast supply of pulp wood.

The roads will tap the timber on the watersheds of the Hoh, Queets and Bogachiel rivers and also that north of the Hoh. The roads are designed principally as log carriers although it is hoped that they will result in the development of further industries in the western Olympic peninsula later.

On Grays Harbor it has been claimed that the Northern Pacific-Union Pacific road will bring about new pulp and paper development. Just how much of this is authentic and how much is optimism is difficult to say. These facts stand out, regarding the Grays Harbor district:

1—The city of Aberdeen has constructed a 60,000,000 gallon water supply and is ready to deliver water to pulp mills in almost any quantity.

2—There are plenty of sites.

3—There is an almost unbounded supply of raw material.

Among other industries which are supposed to spring up on Grays Harbor with the building of the U. P.-N. P. railroad, according to the information gleaned from the Interstate Commerce Commission hearing in October—is a large pulp fiber board mill in Hoquiam. The coming of this mill was forecast by Gaylord Adams, Hoquiam banker. He said that promoters of the plan have been watching the railroad project and their decision to build depended directly on whether the road went in or not.

Hints that further pulp mills are to go up with the building of the road are numerous but apparently have little basis in fact as yet. The story, now becoming somewhat old on the Harbor, that the Grays Harbor Lumber Co., Blagen interests, would put up a pulp mill was frequently mentioned in connection with the coming of the railroad. Mr. Blagen would make no comment on the report.

The construction of the road will put back on the market vast areas of Indian timber on the Quinault reservation. Proponents of the road succeeded in blocking previous sale of this timber on the claim that it was not open to competitive bidding and could not be until a common carrier road was opened. Most of this timber was all but sold to the Polson and Hobi firms before the sale was blocked through official channels at Washington, D. C.

While the roads will open this timber, which is largely government and state owned, according to the reports of federal and state foresters at the commerce commission hearing, it does not mean that the bulk of the timber will simply be thrown upon the market at the prevailing price, or that it will be sold to loggers to log it as they please. State and federal men said in no uncertain terms that they intend to insist upon complete utilization and cutting on a sustained yield basis. The practical phase of this has yet to be worked out but the complete utilization clause is taken as an indication that hemlock and other woods valued chiefly for pulp material will not be left while the more valuable lumber woods are hauled out.

There are, too, reports that pulp companies have looked over sites in the peninsula, particularly in the Queets valley.

Protection; Production; Perpetuation—this is forestry in a nutshell.

This Month's Cover

Pilot Bob Martin of the Port Angeles Air Transport Co. snapped the aerial view shown on the cover this month about four weeks ago. From it one can get an excellent idea of just what is going on in the way of new construction at the Ennis Creek site at Port Angeles, Wash., where the Olympic Forest Products is building what will eventually be a high grade bleached sulphite pulp mill of some 5,000 tons daily capacity and a sawmill in connection.

As has been previously recorded in this journal the company has taken over the site and long-idle buildings of the wartime spruce production corporation. The old spruce mill may be seen in the center of the photo. It is the long building facing the water. In it will be placed the sawmill of the Forest Products company. The 1,200-foot wharf, under construction, is noted in the foreground.

The slab at the left in the pulp mill is the floor of the screen room and bleach plant while the digester building and acid towers may be seen in the center. Walls of the power plant are at the extreme right of the site, adjoining the sawmill building. The frame office structure is at the extreme left hand side, in the rear.

The Olympic Forest Products company's bid of $436,511 on the second portion of the Port Angeles industrial water diversion project was accepted by the city of Port Angeles on December 23. About 1½ miles of open canal and 5½ miles of pipe lines were covered in the contract.

Under the first contract on the water project, the company was speeding work on tunnels for the system, early this month. Digging was being carried on from seven portals.

At the Forest Products company's mill site in Port Angeles, Chris Kuppler's Sons began construction of the plant's 2,000-ton warehouse in the first week of January. It was declared that roofs of the digester plant and screen room would be completed by the end of the month. Digester erectors were expected to arrive by January 15.

While the old U. S. spruce corporation building is being renovated for use as the Forest Products lumber sawmill, an addition is being constructed on the north side of that structure which will house a planing mill, chain, re-saw, etc.

Benjamin T. Larrabee, who is to be general superintendent of the big new mill, arrived at Port Angeles late in December. He comes with a record of 25 years or more in sulphite manufacture from the mills of the S. D. Warren Co. at Cumberlan, Maine.

In the meantime the city of Port Angeles on December 27 signed contracts with the Olympic Forest Products Co., Washington Pulp & Paper Corp., and the Fibreboard Products, Inc., for use of the water from the Elwha river extension project, authorized recently by a bond issue.

The contracts signed call for supplying 30,000,000 gallons minimum to the Olympic Forest Products Co. for $32,000 for the first year and $39,000 annually for 29 years; and 15,000,000 gallons to the Washington Pulp and Fibreboard corporations for $16,000 for the first year and $20,000 annually for 29 years.

The contract with the Washington Pulp, Fibreboard Co. and Olympic Forest Products Co., calls for 10,000,000 gallons additional water when needed for industrial expansion of each of those plants.

With a rated capacity of 100,000,000 gallons of water a day through the tunnel now being driven provided that another short tunnel should be built, the city would have 35,000000 gallons of water a day for industrial purposes over the 65,000,000 gallons maximum asked for by the paper companies.

The contracts to be executed means the three industries will be served from the new Elwha plant, which leaves them ample room for expansion.

Editor's Note: An announcement has just been made that the S. D. Warren Co. of Maine has taken a substantial interest in the Olympic Forest Products Co. See page 35.

Federal Power Commission

In compliance with section 4 (e) of the Federal water power act (41 Stat. 1063, notice is hereby given that George T. Cameron, Chronicle Building, San Francisco, California, has made application for a preliminary permit for a power development on Dorothy Lake, tributary to Taku Inlet, in Tongass National Forest, Southeastern Alaska, consisting of a storage dam, a tunnel to tap the lake below its natural level, a penstock, and a power house on tide water, with a transmission line to the vicinity of Juneau. This application is for the development of power proposed to be used in the manufacture of wood pulp. Any objection to such application or request for a hearing thereon, together with any briefs, reports or other data for which consideration is desired, should be submitted to the Executive Secretary, Federal Power Commission, Washington, D. C.

Filing on Dorothy Lake last month by the Cameron interests is apparently a good indicator that some early construction may be looked for on the paper mills proposed by this group in the vicinity of Juneau. Dorothy Lake was discovered only last summer during the course of aerial mapping and happens to be exceptionally well situated for paper mill utilization.

Mr. Cameron could not be reached for a statement, but it was learned that he was not anxious for publicity on the proposed developments at the present time. From several sources it was learned unofficially, however, that the preliminary surveys on timber and waterpower which have been conducted in the past three seasons for both the Cameron and the Zellerbach interests were favorable enough to warrant going ahead and that permanent permits would be applied for.

Under permanent licenses the licensees must begin permanent work during the present year. It is understood that both the Zellerbach and the Cameron interests are ready to go ahead. J. D. Zellerbach, vice-president of the Crown Zellerbach Corp., who is sole spokesman on the Alaska project is on an Eastern trip and no statement could be secured. It is understood, however, that their plans call for a mill site on Behm Canal, which forms the eastern boundary of the island on which Ketchikan is situated.

The Cameron interests are understood to have three sites under consideration on Castineau Channel, near Juneau. They are at Thane, an abandoned mining town 3 miles south of Juneau, at Treadwell on Douglass Island and across the channel from Juneau and on Lemon Creek, 4½ miles north of Juneau.

Under present arrangements with the federal government both permittees must begin construction on a paper mill of not less than 200 tons initial capacity during the current year.

Sherwood Hancock, recently in the San Francisco office of the Graham Paper Co., has been transferred to the Portland office of the firm. Hancock takes the place there of Ira Dowd who has resigned.

Rayon---

A Product Whose Rapid Development is Significant to Pacific Coast Industries

RAYON is a word heard frequently in our conversation today but few realize that the commodity has scarcely more than established its own name. Altho unknown 40 years ago, it has come into such general use today that it is known the world over as "artificial silk," "art silk" and "fibre silk." These designations are not appropriate and are often incorrect. Rayon is not silk and its origin and manufacture are as different from silk as silk is from cotton.

That rayon started life without a name is due, perhaps, to the fact that the ambition of its inventor was to find a substitute for silk. Expectations were surpassed and the world acquired a new textile rather than a substitute. But rayon had to prove its worth and possibly largely for this reason it has been working its way into our lives incognito as "artificial silk." So rapid has been its growth that by necessity the manufacturers had to find a suitable name. The word "rayon" was selected because it is easy to say, pleasant to hear and expressive.

Due entirely to the persistent efforts and analytical study by scientists and chemists, the faint breath of a weak anaemic, little project begun in 1884 was nursed along. Altho for 16 years there was little improvement, thru the adoption of new formulae with the beginning of the 20th century, a new vigor was injected into the infant and since then it has grown by leaps and bounds. Rayon is now our third largest textile. In 1910 construction was started on the first plant in the United States for making rayon product exclusively.

A study of Table I will reveal the rapid growth that the rayon industry has experienced in this country. Table II shows the tremendous growth in world production. Tables III and IV show the growth of United States imports of rayon yarns and the countries of origin.

According to the latest available census data on the industry in the United States, there were 19 establishments, employing 26,341 wage earners, engaged in the production of rayon and allied products during the year 1927 as compared with 14 establishments and 19,128 wage earners during the previous census year 1925. In 1927 wages paid amounted to $28,649,441, an increase of 24.7% over 1925, and the cost of materials, factory supplies, containers for products, fuel and purchased power $25,747,792, a gain of 39.3%. The total value of products amounted to $109,888,336, a gain of 24.8%, of which $106,468,752 represented yarns, $342,749 waste, and $3,076,835 allied products, including sheets, etc.

TABLE I.
RAYON PRODUCTION IN THE UNITED STATES†

Year	Pounds	Year	Pounds
1919	9,000,000	1925	52,200,000
1920	9,000,000	1926	62,575,000
1921	20,000,000	1927	75,050,000
1922	26,000,000	1928	96,331,000
1923	35,000,000	1929	*125,000,000
1924	37,720,000		

*Estimated.
†From "Rayon—The Chemical Yarn", by Ismar Ginsberg, in the American Chemical Society, News Edition, Vol. 7, No. 9, May 10, 1929.

TABLE II.
WORLD PRODUCTION OF ARTIFICIAL SILK IN 1913 AND 1924-1927[1] IN METRIC TONS*

	1913	1924	1925	1926	1927
United States	700	17,000	25,000	28,000	34,000
Great Britain	3,000	11,000	11,000	11,600	17,600
Germany	3,500	10,500	12,000	11,800	13,600
Italy	150	8,000	13,000	15,900	16,300
France	1,500	6,000	6,500	7,900	9,500
Netherlands	.....	2,000	3,000	6,100	7,500
Belgium	1,300	4,000	4,500	5,900	6,200
Switzerland	150	2,000	2,500	3,600	4,700
Other Countries	1,250	3,500	5,000	7,900	11,200
	11,550	64,000	82,500	98,700	120,600

[1]In part from the League of Nations Artificial Silk Report, 1913-1916, and completed from data published in the Textile Argus, 1928.
*Metric ton equals 2204.6 lbs.

Rayon garments and rayon upholstery fabrics

What rayon has sought as a raw material is pure cellulose. Naturally it has turned to cotton linters as a readily available form of vegetable fibre of very high and pure cellulose content. With the tremendous growth of production, however, the industry has been turning increasing attention to the conversion of wood cellulose to rayon use.

There are four separate and distinct processes now in commercial use in the manufacture of rayon, the resulting product of each process differing in certain respects from all the others. Irrespective of the process used, cellulose obtained either from cotton linters or wood pulp, usually spruce, is the basic raw material. The four processes and the ratio of the 1928 domestic production accounted for by each are: viscose, 84% of the total; nitrocellulose, 9%; cellulose-acetate, 5%; and cuprammonium 2%.

In the Northern European countries, long known for their wood pulp production, we find a trend for meeting the rayon requirements. A recent report from Commercial Attache Marquard H. Lund, Oslo, states that the "demand of the rayon industry for bleached pulp is bringing about marked changes in the Norway pulp mills." These mills are rebuilding their equipment to enable them to turn out bleached pulp for rayon manufacture instead of the unbleached pulp for paper mill consumption which constitutes the present output. This report of Norway is but characteristic of the Scandinavian group of countries. In 1928 it was estimated that these nations furnished from 40% to 45% of the total requirements of bleached sulphite pulp for the rayon industry, estimated then to have been approximately 222,000 tons.

Altho the manufacturing capacity of the United States rayon plants has been enhanced substantially each year, it has been necessary, with the possible exception of 1926, to supplement this production with imported yarns to satisfy demands of the consuming industries. During the past ten years the ratio of importations to domestic consumption has ranged from 5% to 18%. The import tables shown in connection with this discussion indicate to what extent the United States has had to draw upon outside sources to fill its rayon demands. Italy, France, Germany, and the Netherlands, it will be noted, are the chief sources of supply for American imports, these four nations supplying 90% of the total imports.

The use of rayon pulp has increased at the rate of about 30% each year for the past several years and there is a strong probability that a much greater rate of increase within the next few years is entirely possible.

Despite the increase in rayon consumption, the total figure is relatively small when compared with the total consumption of the four leading fibres in the United States and the world. An analysis of data by the Fairchild Analytical Bureau shows in 1927 the following fibre consumption: cotton, 81.16%; wool, 15.09%; rayon, 2.15%; silk, 1.60%. It is interesting in this connection to note that silk increased slightly from 1.24% in 1922, whereas in 1922 rayon was a poor fourth with only .67%.

"As far as the quantity of artificial silk is concerned" Frank Reinthaler, author of "Artificial Silk," warns us, "data frequently given in this connection should be accepted with reserve for these statements often originate from interested quarters. As a matter of fact, in comparison with the period just before the war, when the world production was estimated at about 12,000,000 Kg*., the artificial silk industry has undergone an enormous development representing approximately a tenfold increase from 1913 to the present time; consequently a further increase in the consumption of artificial silk can confidently be predicted." At present the United States uses about 32%, Germany 13%, Great Britain 9.25% and France 8.25% of the total world consumption.

TABLE III.
RAYON YARN PRODUCTION, IMPORTS, AND AMOUNT AVAILABLE FOR CONSUMPTION
(In thousands of pounds)

Year	Approximate domestic production	Imports for consumption	Total available for consumption
1911	320	1,800	2,120
1915	4,111	3,000	7,111
1920	10,240	1,480	11,720
1921	15,000	3,276	18,276
1922	24,406	2,116	26,552
1923	36,447	3,029	39,506
1924	38,494	1,954	40,448
1925	51,902	5,441	57,343
1926	63,648	9,351	72,999
1927	75,555	15,045	90,600
1928	97,901	12,117	110,018

Source: United States Tariff Commission for years 1913 to 1922, inclusive; production figures for 1924, 1926, and 1928 are estimates of the Daily News Record of New York City; while for 1923, 1925, and 1927 official census figures are used; other figures are from records of the Bureau of Foreign and Domestic Commerce.

Never before in the history of textiles, not only in this country, but in Europe as well, has there been such progress and growth as has taken place since rayon became popular. Rayon has provided the slow moving, rather unprogressive textile industry with at least one branch full of life and activity, whose expected growth can be merely estimated and whose ultimate end can scarcely be conjectured.

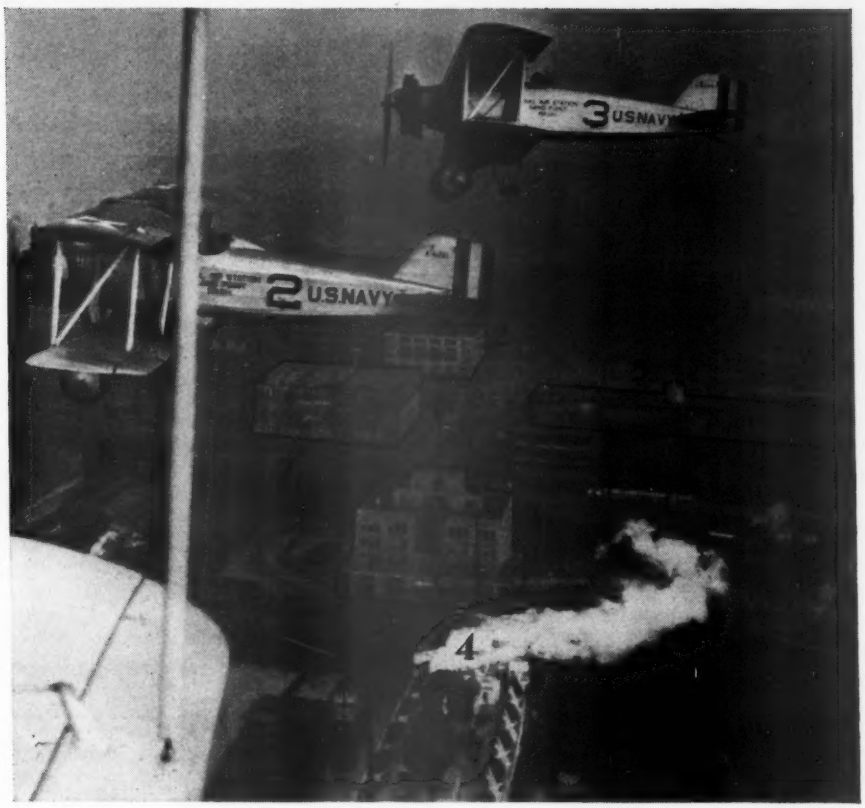
Because of the enormous quantity of chemicals used by the rayon industry, there has been a great degree of

(Turn to page 39)

*Kilogram = 2.2046 lbs.

TABLE IV.
IMPORTS OF RAYON YARNS INTO THE UNITED STATES

Country—	1927 Quantity Pounds	1927 Value	1928 Quantity Pounds	1928 Value	January-June, 1929 Quantity Pounds	January-June, 1929 Value
Austria	425,630	$292.026	156,883	$129,491	89,047	$65,368
Belgium	585,815	432,025	868,164	611,120	134,386	92,516
Canada	49,460	40,774	1,773	1,961	19,133	11,248
Czechoslovakia	1,238	1,213	56	148		
France	2,863,509	2,286,685	2,194,823	1,999,887	1,922,108	1,370,594
Germany	2,603,123	2,523,070	2,638,542	2,768,814	3,209,378	2,800,541
Hungary	20,123	27,526	36,358	56,219	40,267	56,665
Italy	6,760,408	5,612,694	4,728,585	3,552,800	2,119,241	1,382,526
Netherlands	2,627,529	2,163,087	1,548,594	1,244,828	1,191,954	874,224
Switzerland	243,479	220,170	538,676	501,963	444,748	345,174
United Kingdom	53,773	63,467	20,395	34,120	53,009	56,557
Other countries	1,637	1,756	741	438	2,384	3,446
Total	16,235,724	13,664,493	12,733,590	10,901,789	9,225,655	7,058,859



Looking down on two Seattle paper jobbing houses and some of the transportation facilities that surround them so plentifully.

Surrounded With Service Facilities

Manager J. W. Thompson of the Seattle Division of Blake, Moffitt & Towne (1) points out that his division and the Seattle division of the Zellerbach Paper Co. (2) occupy a position in the paper jobbing field which is perhaps unique in the nation. The air view presented on this page shows the two jobbing houses located just one block apart and separated by one of the city's chief arteries, First Avenue South.

One block removed from the Blake house is the terminal of the Pacific Steamship Co. (3). Drawn up at the steamship company's pier is the Pacific Coast's crack liner, the H. F. Alexander (4), which unites the California ports with Seattle with a fast service, affording a water connection with headquarters of both houses in San Francisco.

In between the steamship terminal and the Blake house are the tracks of four big railroads (7), the Great Northern, the Northern Pacific, the Milwaukee, and the O. W. R. and N. The Milwaukee's freight sheds (5) are close by and those of the other railroads are within the proverbial stone's throw. A couple of blocks further down are the auto freight depots (8). Close by the Pacific Steamship Company's terminal are the piers of the Alaska Steamship lines. The major industrial section (6) partially surrounds the jobbing houses. The retail district is up First Avenue to the left.

A jobbing location with all these facilities of transportation so close by is perhaps not duplicated anywhere else, Manager Thompson believes.

C. E. McKillop who was formerly in the Portland office of Graham Paper is coming to the San Francisco office of the firm.

PACIFIC PULP AND PAPER INDUSTRY—
71 COLUMBIA ST SEATTLE WASH
ANSWERING YOUR WIRE JANUARY SIXTH YOU ARE AUTHORIZED TO ANNOUNCE THAT S D WARREN COMPANY NOTED MANUFACTURERS OF FINE PAPERS HAVE BECOME INTERESTED AS INVESTORS IN THE OLYMPIC FOREST PRODUCTS COMPANY AND HAVE MADE LONG TERM CONTRACT WITH THE LATTER FOR THEIR SULPHITE REQUIREMENTS STOP THIS INVESTMENT AND CONTRACT WERE MADE AFTER EXTENDED TESTS OF PULP MANUFACTURED BY THE RAINIER PULP AND PAPER COMPANY IN THE MILLS OF THE S D WARREN COMPANY WHO HAVE BECOME CONVINCED OF THE SUPERIOR QUALITY OF SUCH FIBRE PRODUCED FROM PACIFIC COAST WOOD FOR THE MANUFACTURE OF THEIR HIGH GRADE STANDARD PAPERS WHEN THE PULP IS MANUFACTURED WITH THE NECESSARY CARE AND SKILL STOP THE S D WARREN COMPANY DO NOT CONTEMPLATE AT THIS TIME THE MANUFACTURE OF ANY PAPER ON THE PACIFIC COAST

E M MILLS.

The Japanese Market Situation

An Interview With LAWRENCE B. KILLAM
President, British Columbia Pulp & Paper Co., Ltd.

SEVERAL potentially adverse conditions affect the Japanese market for Pacific Northwest pulp at present, but indications are for a normal demand and gradual expansion of business in that territory, according to Lawrence W. Killam, president of the British Columbia Pulp & Paper Co., Vancouver, B. C., who recently returned from a two and a half months' tour of the Far East.

"The lifting of the gold embargo may or may not hit the pulp business," said Mr. Killam. "The ultimate effect will be to stabilize business all round and lead to an improvement in trade, but in the past some Japanese manufacturers have been benefited by the discount on exchange in the same manner as though there were a high protective tariff for them. With this situation suddenly removed there may be a certain dislocation of business, but it should not last long.

"There does not seem to be any immediate likelihood of an increase in the Japanese tariff on pulp," continued Mr. Killam. "At present we have to pay something like $2.50 a ton to enter that market, but while there is agitation in Japan for a higher schedule there seems little chance of its materializing.

"There are two groups of pulp and paper manufacturers in Japan. One of them is composed of a combination of three big paper companies which manufacture their own pulp, mostly from woods taken from Saghalien Island. They don't relish the competition of North Ameircan pulp. The other group is composed of about a dozen smaller mills, with an output in the aggregate not nearly as large as that of the big fellows, but with undeniable influence.

"The smaller mills are our customers and they know that if any changes are made in the tariff calculated to make it more costly for us to enter the Japanese market they are the ones that will suffer most. They will either have to pay the higher price or be at the mercy of the big Japanese mills, which can demand their own price for pulp.

These smaller mills are always to be relied on as a brake to any movement for a higher tariff on pulp, and a very strong argument which they do not fail to use is that a higher tariff is going to force prices higher to the consumer. It would be different if there were vast pulpwood forests in Japan. On the contrary, the extent of Japan's available pulpwood forests is extremely limited. Siberia is not in the picture at all."

Perhaps the most serious factor affecting trade with Japan at present is the breakdown of business in China, according to Mr. Killam, who pointed out that conditions in China were becoming more and more a barometer of markets in Japan.

"When I was in China, navigation on the Yangtse was greatly curtailed on account of the civil warfare, and that meant communications with the vast interior of China were paralyzed. Since then trade may have picked up and, if so, no one will welcome the improvement more than the business men of Japan.

"If China is in good shape commercially, you can look for a good market for your goods in Japan. China makes virtually no paper; what China consumes is bought through Japan. But the paper trades are not neglected in China, for in Shanghai I went through the vast plant of the Commercial Press which is devoted entirely to the handling of paper products, printing books, and so on. No less than 6,000 persons were employed in that one enterprise."

Japan, Mr. Killam pointed out, was the only serious competitor of the Pacific Northwest mills in the Oriental market. The Baltic countries were not a serious factor.

Mr. Killam was one of the Canadian delegates to the Conference of the International Conference on Pacific Relations held at Kyoto, Japan. He was accompanied by George Kidd, chairman of the board of the B. C. Power Corp. and a director of the B. C. Pulp & Paper Co. They visited various points in the Far East as far south as Shanghai.

Japanese Paper Production

The Japanese Paper Manufacturers' Association reports production by member mills during the month of September at 59,896 short tons and sales at 58,224 tons, bringing the totals for the first 9 months of the current year up to 532,427 tons and 514,580 tons, respectively.

Japanese Plan Joint Sales Guild

The expansion in paper manufacturing facilities in Japan, accompanied as it is by the depression of the market due to business conditions, has caused the paper producers to consider some means to prevent a sharp decline in prices. An agreement in regard to curtailing production was entered into in the early months of the current year by the Oji, Fuji, and Karafuto Kogyo companies, which control over three-fourths of the output of machine-made papers, but it was ineffectual in upholding the market prices, and these companies are now understood to be negotiating for the organization of a joint sales guild.

Organize A New Astoria Company

Articles of incorporation for the Oregon Sulphite Pulp Co., with offices in the Columbia Building, Portland, were filed last month at Salem by Jay Bowerman, prominent Portland attorney, who has been retained by the newly-formed company. F. Powers, Aileen Gullans and F. M. DeNeffe are named incorporators.

The new organization, composed of directors and a number of the stockholders identified with the Northwestern Pulp & Paper Co., proposes ultimately to build a 50-ton sulphite pulp mill on or near the site which was to have been improved for a pulp mill by the Northwestern company at Astoria, Oregon. The plant will be built with a view to increasing its capacity 50 per cent, according to a spokesman for the company, who said it would probably be 60 days before plans could be made public.

A separate group of Northwestern stockholders pledged themselves at a meeting held last month at Oregon City to raise $4,150 to be used to force the original directorate to either build the mill or return the money so pledged. Meanwhile, attorneys for the latter faction have mailed requests to absentee stockholders urging that the movement be given financial support.

A Billion Feet of Lumber

Grays Harbor for the sixth consecutive year shipped over a billion feet of lumber during 1929, according to estimates made by the port of Grays Harbor. The total, however, is below that for the last two years.

Some trends in the

Proper Screening of Wood Chips for Pulp

By H. J. FLINT
Traylor Vibrator Company

QUALITY and yield in making wood pulp, particularly the higher grade bleached sulphites, is determined to a considerable degree in giving the right kind of chip to the digester. The preparation and sizing of the chips is really a subject in itself.

Not many years ago the wood room utilized ponderous, revolving screens to size and remove sawdust from the chips before they were hurried to the digester. Later, shaking screens were used, sometimes with two and sometimes with three decks. Introduction of the shaking element introduced new problems such as the necessity of more substantial building supports to withstand the shaking action, the posting of screen tenders to keep too many chips from sliding to the crushers or going to the digesters only partially sized and cleaned. These several new problems resulted in further demands for improvements in chip sizing equipment.

The demand for more effective and more efficient screens resulted in the introduction of vibrating screens. Here was a case of borrowing an idea from the mining industry, for vibrating screens had long been used in the separation of ores. The principle of all these vibrating types—sales chatter to the contrary—was simply gravity separation, coupled with a rapid agitation of the screening surface.

While the present is not an occasion to compare types or makes of equipment one may nevertheless make the generalization that all of them are attempting to size the chips by passing the accepted material through an opening 1½ inches square and retaining the accepted chips upon a ¼-inch opening. Moreover, the typical installation has always utilized one double deck unit to make this separation.

Obvious Facts

It has taken time, effort and much coin of the realm to discover a few obvious truths.

First, the attempt to prepare clean wood chips by using one double deck screen must go! Why? The wood, in the first place, usually runs 50% or better in moisture content. Each time a saw passes through the log, bark, dirt, and sawdust is impregnated in the wood and it stays there despite the roar and whirr of the chipper.

Second, the percentage of oversize chips that go to the crusher or burner, as the case may be, is so small that the lower deck of the screen gets between 90 and 95% of the entire feed. Double decked vibrating screens were never designed to make such a separation. While it was permissible to borrow the vibrating screen from the mining industry one can see somewhat the same parallel here as was witnessed in the automobile industry. There, the first makers of automobiles simply started rebuilding and adapting the horse carriage. The pulp industry took over the screen "as is" but it has had to make some changes. Naturally, when you change from a heavy material such as metal ore to a light, fluffy and splintery material such as unrefined wood chips you must begin revising something.

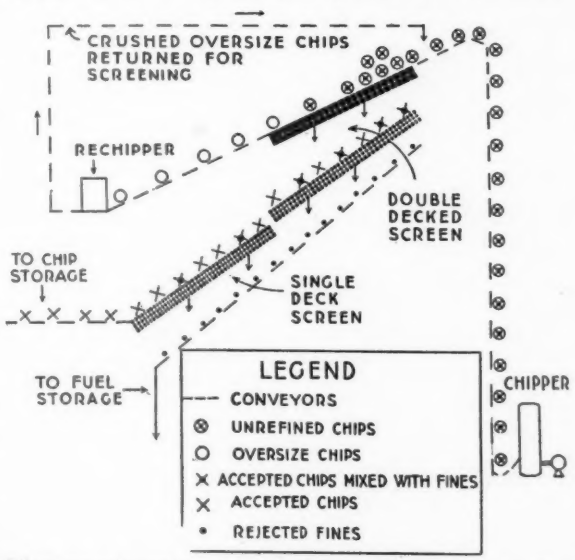
Obviously, efficient screening has been difficult to say the least. Many operators simply increased the size of the opening on the lower deck and wasted good chips solely because they were forced to.

Third, an analysis of chips as they come from the chipper will quickly convince one that the present double deck machines need help if they are ever to produce chips free from dirt and sawdust.

What then is the solution, accepting the present condition of wet wood chips and chippers that deliver all sorts of chips from match sticks to huge slaps and long slivers?

The accompanying chart tells the story. The first double deck screen, with staggered decks to prevent the chips from flowing too rapidly, takes the chips from the elevator, bin or feeder.

The top deck, fitted with a wire cloth with large opening, scalps off the oversize. The lower deck, usually equipped with ¾" square opening screen cloth, delivers



Diagrammatic version of double-decked chip screening operation

its oversize as finished chips and its undersize falls onto a single deck screen. This separation on the lower screen (heretofore accomplished on the screen above) now presents no inherent obstacles that prevent efficient separation.

The results of such an installation are quickly appar-

(Turn to page 38)

In this mural the artist depicts logs en route to the pulp mill

Pacific Northwest Car Loadings Increase

Report of the committee on paper, paper products and pulp to the meeting last month of the Pacific Northwest Advisory Board of the American Railway Association showed further increases in the car requirements of the pulp and paper industry for the first quarter of 1930. Compared with same period in 1929 the estimate shows an increase from 2561 to 2899 cars.

The outbound movement in this territory of paper, paper bags, box board containers and pulp in the next three months will approximate 2899 cars.

	Actual Loading 1929	Prospective Loading 1930
January	897	961
February	857	958
March	807	980
Total	2561	2899

The distribution of the 2899 outbound cars will be in the following territory: Oregon, 248; Washington, 601; California, 633; Eastern Territory, 426; Southwestern Territory, 220; Middle Western Territory, 661; Canada, 86; Export, 24.

The inbound movement is estimated as follows:

	Actual Loading 1929	Prospective Loading 1930
January	2437	3214
February	2892	3137
March	2828	3302
Total	8157	9653

Intercoastal tonnage was reported to show heavy increases due to added pulp movement to the Atlantic seaboard. The decrease in demand for cars for export was attributed to delivery by boats and direct call by vessels.

Murals For Crown Zellerbach Building

The romance of paper making today is pictured in four beautiful mural paintings by Warren Chase Merritt in the series of ten panels being installed in the board room of the Crown Zellerbach Corp., in San Francisco. Two of these paintings are reproduced here. The one on the opposite page shows the cutting of trees in the spruce forests that supply most of the pulp for paper manufactured in this country. The panel on the left shows the transportation of the logs to the mill where paper is actually made.

In both of these panels the artist has caught the vigorous spirit of the woodsmen on whom the paper industry relies. In the woods, it is true, much of the work in handling the logs is done with donkey engines and modern pulleys and cables, but the woodsman still plays a large part. The brawn and ingenuity of man is tested in the felling of these great trees.

Another type of strength and skill is needed in the handling of the logs on their way to the mill. In the second panel, Merritt has painted three typical workers, two riding the log train into the mill where the logs will be converted into pulp.

These murals will keep fresh in the minds of the executives in the board meetings the wide reaches of forest and the men on whom they must depend for paper. Together with the historical panels on one wall, and the symbolical panel at the end of the room, these murals will present in symbol the elements of which the paper industry is composed.

Lyall Tracy Moves To Hoquiam

Lyall Tracy, for several years office manager at the 300-ton news print mill of the Washington Pulp & Paper Corp., Port Angeles, Wash., transferred his activities to the mill of the Grays Harbor Pulp & Paper Co., Hoquiam, late in December.

He is succeeded at Port Angeles by J. M. Hector.

Proper Screening of Wood Chips

(Continued from page 37)

ent; uniform, clean chips. There is little need to operate a crusher and extra screen because this set up will prevent an overflow of chips. The wood loss will be lower because the lower screen operates with a smaller sized screen cloth which removes only the dirt and sawdust. Moreover, the accepted chips have twice the ordinary distance to travel before finally passing to chip storage and consequently there is just that much more opportunity to dislodge unwanted "fines" enroute, i. e., on the single deck screen.

This set up was designed over a year ago by the Traylor Vibrator Co. and they were the first in the Northwest to install the two-deck principle. More are to follow.

The problem of delivering clean, properly sized, sawdust free chips to the digesters is by no means completed. The writer predicts that soon you will see single decked vibrating screens used for rescreening the wood chips after they have been stored and are ready for the filling digesters. The chips, by the time they reach these single decked screens will have been subjected to considerable tumbling and will be more readily screened because the drying out of their surfaces will have released microscopic sawdust and dirt.

These two factors, tumbling and drying, are, in themselves, sufficient to justify rescreening to remove dirt and sawdust.

Development of Rayon Industry

(Continued from page 34)

cooperation between the rayon and the chemical industries with the result that an increasing improvement in the grades of rayon manufactured has been noted. Not only has it been necessary to produce chemicals to meet the most rigid specifications but it is thru chemical processes that much high alpha cellulose sulphite pulp and cotton linters have been made available.

The past year saw three new plants for the production of acetate rayon come into production. These are the DuPont plant at Waynesboro, Virginia, the plant of the Viscose Company at Meadville, Pennsylvania, and that of the American Chatillon Corporation at Rome, Georgia. The world's production of acetate was about 18,000,000 lbs. per year and these new plants greately increased it. The general opinion of experts is that viscose and acetate will each continue to develop because of its special application, altho at present the saturation of the market for acetate is far more distant than viscose. Staple fibre is made abroad and largely used there, particularly in Italy where it is actually used to replace wool in clothing. It is said that even the expert finds it difficult to tell which suit is all wool and which contains a proportion of "artificial wool."

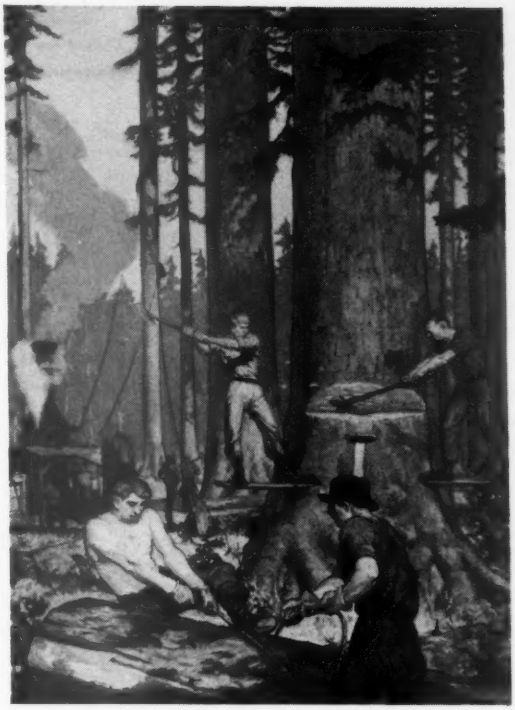
With the question settled that the rayon industry has become established, we might ask "what are the specific opportunities for the rayon indusry on the Pacific Coast?" In the first place, there is an enormous wood supply available and the prospects for sustained yield through new forest crops is perhaps brighter than in other sections of the country. It is logical to assume that with the growing demands of the rayon industry for wood pulp of rayon quality, that attention will be turned to the Pacific Coast sources of raw material.

Douglas Fir May Be Used

Of real importance is the fact that recent investigations seem to indicate that Douglas Fir fibre will lend itself admirably to rayon conversion. If such a development can be worked out in commercial practice, it will mean significant things for the Pacific Coast inasmuch as the great quantities of unutilized Douglas Fir which result from present logging and saw milling methods could very well be diverted to feeding the growing appetite of the rayon industry. So far Douglas Fir has exhibited a long, strong, but rather rough fibre which does not lend itself readily to manufacture of the finer papers due to the inability of manufacturers to train the fibre's fuzzy nature and make a smooth sheet. From the rayon standpoint this fuzzy nature seems to be very desirable in that it facilitates the absorption of chemicals which must be applied to the fibre in treating for rayon manufacture.

It is quite probable that Pacific Coast wood pulp mills will in the very near future enter the rayon market. Some of the mills have for some months been looking quietly into this new field. It seems more likely at the present writing, however, that it will be the bleached sulphite mills which will go over to rayon pulps and that the Douglas fir conversion must await further apprenticeship in the laboratory.

One point in favor of Pacific Coast mills turning to rayon pulps is the market awaiting across the Pacific. For example, the Japanese company, the Mitsubishi Shoji, a few months ago placed an order for 1,000 long tons of rayon pulp with a Norwegian wood pulp mill (Borregaard) at a price believed to be about $110 per ton. More to the point, it is said that the Norwegian mill has quite well sold up in the closer-at-home European market and that it was able to allot only some 5,000 long tons to Japan for 1929.



This mural portrays the spirit of the woodsman

The annual manufacture of rayon in Japan is now estimated to be about 16,400,000 lbs., the production being distributed as follows:

Teikoku Rayon Co.	7,400,000 lbs.
Asahi Rayon Co.	3,800,000 lbs.
Nippon Rayon Co.	1,400,000 lbs.
Toyo Rayon Co.	1,800,000 lbs.
Tokyo Rayon Co.	700,000 lbs.
Miye Rayon Co.	800,000 lbs.
Others	500,000 lbs.
	16,400,000 lbs.

From Norway (Borregaard mill)	8,500 long tons
Sweden (Sundry mills)	700 long tons
Canada (Kipawa mill)	400 long tons
Finland (Sundry mills)	400 long tons
	10,000 long tons

Japan imported 10,000 long tons of rayon pulp in 1928, from the following mills:

Gordon W. Land, of Kobe, Japan, to whom we are indebted for the import and production statistics on Japan adds an interesting comment on the Japanese rayon mills.

"Most of the mills in Japan," he writes, "were constructed after the German method and the consequence is that the engineers prefer to use the brands of rayon pulp which are being consumed in Germany. I am therefore afraid that it will be difficult to get the mills to use American pulp unless a technical expert is sent over in the beginning to demonstrate the quality of the pulp."

The National Safety Council is alway on the lookout for good photographs that may be used as poster subjects. Have you ever thought that such a poster would be most effective displayed in your own mill, to say nothing of being a worthwhile contribution to the general good cause of safety?

T-R-A-D-E - T-A-L-K

Devoted to the Paper Trade of the Western States

Coach Thompson Peps Up His 1930 Team

When they'd got down to the coffee, and appetites were pleasantly satiated at the second annual banquet of the Seattle Division of Blake, Moffitt & Towne, Vice-President and General Manager J. W. Thompson rose from his place at the speakers' table in the Rose Room of the Hotel Washington. The date being December 26, Manager Thompson took occasion to review the work of the year just closing and to pep up for the new year the B. M. & T. Seattle clan which had gathered for the occasion.

The organization was pretty much like a football team, Manager Thompson said. There was the manager and department managers who were the coach and assistant coaches. The salesmen were the backs who were bucking the line and seeking to carry that net profit ball for a year's goal.

The year 1930 would see the same competitors in the field but a new schedule had been worked for the 1930 games. Some of the plays they had used this year would be kept over, some would be discarded and other new plays would be developed to meet new strategy.

The banquet also commemorated the 75th milestone in the history of Blake, Moffitt & Towne. In tune with this note the entertainment committee tied in the idea of the famous French "75's"—the guns which played such an important part in the World War— providing a miniature cannon as a place card for each guest.

Following the banquet the programs were passed about for autographs and each man was requested to put down the year he entered the paper business. This little stunt turned up some real old timers, one revealing a service beginning in 1891, another in 1894, while Manager Thompson himself put down 1900 opposite his own name.

There were other speakers at the banquet with important subjects. It sounds like E. H. Pope has something to do with credit judging by his talk on "If Yo' Ain't Got No Money You Needn't Hang Around." J. C. Whitelaw, sales manager, spoke on "Taking the Well Known In Both Hands." George Hart gave an insight on deliveries with a talk on "It's on the Way," while Charles Hughey did some statistical juggling on the subject of "Figures Don't Lie—Much." Claude Craig might have been discussing the well known blindfold contest. His subject was "That's Another Cigarette I Owe You." And Frank Carson wound up with some dissertation on the mill relations side with "Why, That's the Mill's Error."

New Salesman In Denver Territory

Frank H. Eyser, who has spent 20 years in the factory and office of the Carter, Rice and Carpenter Paper Co., has been appointed to the sales force of that company and will work in the Denver territory.

Colorado Paper Men Entertain National Secretary

The paper manufacturers and distributors of the Rocky Mountain region entertained Frank Floyd, secretary of the National Paper Trade Association, at a gala banquet held at the Brown Palace Hotel in Denver the night of December 18. Every paper house in Colorado was represented.

Mr. Floyd in an inspiring talk told of surveys which had been made regarding operating expenses, delivery costs and the like. In the main he said that more and more houses were cooperating to eliminate the small order which often results in loss inasmuch as the cost of handling such an order is as great as that for a larger one.

He advised districting of territory and the making of deliveries within this districting at a stated time. His talk was in the nature of a round table discussion and led the paper men present to adopt at once many of his suggestions. It was the first time all houses had been represented at a meeting and where all agreed to a certain definite line of procedure.

Make Fifth Issue Of Calendar Series

Carter, Rice and Carpenter of Denver have issued the fifth calendar in a series of conservation subjects. So far beautiful calendars giving testimonial to the value of conserving our birds, forests, fish and ducks have appeared. This year's idea is the saving of game. Besides being most useful these calendars prominently displayed undoubtedly serve as a check to those who are wont to consider the destruction of our game and fish lightly.

Master Printers Have Christmas Party

The Master Printers of Colorado, their wives, sweethearts and children, held their annual Christmas party in the Shirley-Savoy Hotel in Denver the night of December 26. Some 300 persons attended. J. Harry Custance, general manager of Carter, Rice and Carpenter, was called upon to take the place of Santa. A vaudeville program preceded the distribution of gifts. Arrangements were in the hands of President Orville L. Smith and a committee composed of George Sink, Joseph Bamber, Edward Lanning, Linn S. Megill, E. J. Hurd, Fred Zimmerman, Richard O. Boldt, Al Stauter, E. T. Holbeach, Fred W. Reed, Ralph Palmer and Frank S. Cronk.

B. M. & T. Seattle Division Departmentized

Effective the first of the year the Seattle Division of Blake, Moffitt & Towne reorganized its activities upon a department plan. Under this new arrangement J. C. Whitelaw is manager of the wrapping paper department, J. H. Leatherman is in charge of fine papers, and C. M. Craig is in charge of cordage and specialties.

THE SALES AND EXECUTIVE FORCE OF BLAKE, MOFFITT & TOWNE'S SEATTLE DIVISION POSES FOR PHOTO

From left to right—William A. Taylor, C. M. Craig, E. J. Nichols, George A. McFarlane, Robert E. Jones, C. J. Roehr, L. E. Hobbs, J. R. Pike, J. H. Leatherman, D. C. Skelly, Frank Carson, Carl Bock, J. M. Darnell, Walter Flory, J. W. Thompson, John Vlasich, C. W. Moyer, Kenneth O'Loane, George H. Brown, George W. Brewer, George Taylor, L. L. Beveridge, E. C. Moulton, J. N. Bowling, W. E. Blashfield, George Hart, J. C. Whitelaw, Malcom S. Wilson. The general absence of coats and hats is at the same time a testimonial for Seattle "winter" weather. The photo was taken the day after Christmas.

Denver Firm Holds Annual Christmas Party

Employes of Carter, Rice and Carpenter in Denver held their annual Christmas party at the Oxford Hotel on December 28. All employes, including those of the Colorado Paper Co. of Pueblo, a subsidiary, attended the festivities. All wore the new caps made by the firm with the name of each individual appearing thereon as a means of getting better acquainted. All entertainment was furnished by members within the company and good entertainment it was. The annual sales meeting was held in the forenoon.

Business As Usual

"So far, we haven't seen any noticeable change in our sales as a result of the recent stock market slump," says Ed. A. Doran, vice-president and general manager of Blake, Moffitt & Towne, Pacific Coast paper jobbers. "And of course we are hoping that there is no change in the situation. The holiday business was good and we hope it will continue."

Horwitz Company Due For Expansion

The Horwitz Paper Co. of Denver has just completed a successful year and has launched on a policy of expansion for 1930. The first step in this expansion is the installation of a new Potdevin cutting machine.

Good Business In Cards

The Graham Paper Co., Denver branch, reports a clean up sale of Christmas cards and fancy box stationery for the holiday season.

Individual Drinking Cup Co., Easton, Pa., makers of "Dixie" containers for liquids and semi-liquids, is establishing a plant at Toronto which will handle the company's entire export trade.

Arouse Enthusiasm Among Employes

Fostering a spirit of loyalty and esprit de corps among the employes of its 17 divisions, the calendar motto contest held by Blake, Moffitt & Towne of San Francisco is unique in the paper trade.

Every year the employes in all the divisions are urged to send in contributions for the contest. All slogans are submitted by number only so that there may be no favoritism, and a committee of judges decides upon the best one. No lines must call attention to the firm, products or service. They must be a certain length, and may or may not be original.

This year the line winning an extra prize was submitted by H. C. White, Jr., manager of the Sacramento division of Blake, Moffitt & Towne. "A man of courage is also full of faith."

The other lines are as follows: "Stop and think, but don't stop thinking." "Success is a journey not a destination." "Silence is a true friend who never betrays." "Indecision is the death of many good ideas." "Men stumble over molehills, not mountains." "Dig for facts—don't jump at conclusions." "Confidence is the companion of success." "No man can grow by letting others make his decisions." "He conquers twice who conquers self in victory." "It is much easier to be critical than to be correct." "The supreme test of courage is to stand by your convictions."

About 500 mottoes were submitted for the contest, and of the twelve prizes awarded eight were won by employes of the Los Angeles division.

An interesting sidelight on the contest which was started about 20 years ago by A. G. Towne, Sr., is that an entire room in a house in Berkeley, Calif., is papered with these mottoes which have been clipped off the bottom of the calendars and pasted to the walls.

International Paper's new Dalhousie, N. B., Canada, mill begins production on first of three 125-ton news machines in January.

The Chlorine Method of Pulp Production*

By W. HIRSCHKIND,
Great Western Electro Chemical Co.,
San Francisco, California

THE principal use for chlorine in the present day pulp industry is for bleaching. Since time immemorial, vegetable fibres have been bleached by exposing them to the action of sun and air whereby oxygen activated by the sun's rays is the effective agent. The utilization of chlorine for the purposes of bleaching became possible with the discovery of hypochlorite in 1789. The decomposition of the hypochlorite ion results in the liberation of activated oxygen so that the effective reagent in the chlorine method of bleaching is the same as in the ancient method except that a far more energetic and rapid action is possible due to high concentration.

Shortly after the war, reports were received from Europe about new applications of chlorine in the pulp industry as a means of actually producing pulp. The idea was not new. Cross and Bevans, in their classic treatise on cellulose, point out that a delignification or a separation of the lignin from the cellulose may be effected by a treatment with chlorine which has been preceded by a short treatment with dilute caustic soda. So perfect was the separation obtainable that Cross and Bevans recommended this method for quantitative determination of cellulose in wood and vegetable fibres. However, the price of chlorine at that time was such that nobody would seriously consider the practical adoption of this process on a large scale. This came to pass at a much later date and was largely due to economic pressure resulting from overproduction of chlorine.

Chemistry of Chlorine Processes

The chlorination of organic compounds may proceed in three different ways characterized as addition, substitution, and oxidation.

In a substitution reaction one half of the chlorine combines with the organic compound while the other half is split off as hydrochloric acid. Substitution and oxidation may go on jointly.

The liberation of hydrochloric acid is characteristic for both substitution and oxidation.

In all cases of reaction of chlorine on vegetable fibres, water is present, causing hydrolysis to hydrochloric and hypochlorous acid. Removal of these two acids from the reaction mixture, makes the hydrolysis more complete, while a hydrochloric acid concentration will depress it. In case of the reaction with chlorine water, we have to deal with a chlorine far more hydrolysed than in case of chlorine water where the saturation with hydrochloric acid and consequent depression of the hydrolysis occurs much sooner.

Cross and Bevans were the first to study the action of chlorine on fibre. Chlorination of jute fibre results, according to these authors, in the formation of Lignin Chloride which takes up one half of the chlorine reacting while the other half is given off as hydrochloric acid. The process is, therefore, a straight substitution. The lignin chloride formed was a uniform product containing 26.83% chlorine.

*Address delivered at annual meeting of Pacific Coast Section of TAPPI, Tacoma, Washington, October 5, 1929.

The effects of chlorine on wood were investigated by Heuser and Sieber who found, however, that a one time treatment is not nearly sufficient to separate all lignin from cellulose. Using repeated treatment on pine wood, the authors have shown that the amount of chlorine combining with the lignin is less than one-third the amount given off as HCl; therefore indicating a considerable oxidation as well as hydrogen replacement. The authors could also determine that during the primary chlorination of the lignin (substition), oxycellulose is formed only to a small degree, but sets in to a large extent after all of the original lignin is converted. Heuser and Haug investigated the effect of chlorine treatment on straw and found that very similar conditions as in the case of pine wood prevailed although only a one time treatment was necesasry. Both series of experiments were carried out with a considerable excess of chlorine.

Experiments far more thorough than those mentioned were carried out by H. Wenzl, pulp expert of the German T. G. in order to determine the difference between chlorination with chlorine gas and with chlorine water and consequently the influence of the hydrolysis of chlorine on the reaction. Ground pine wood was steamed until it contained 78% water. Equal quantities of this so prepared wood were subjected to the action of 20% of its weight of chlorine in the following forms:

(1) As chlorine gas; (2) as chlorine water; (3) as chlorine dissolved in 10% HCl; (4) as chlorine dissolved in carbon-tetra-chloride.

Analytically determined were:

(1) The quantity of chlorine reacting; (2) the quantity of HCl formed; (3) the quantity of chlorine combined chemically.

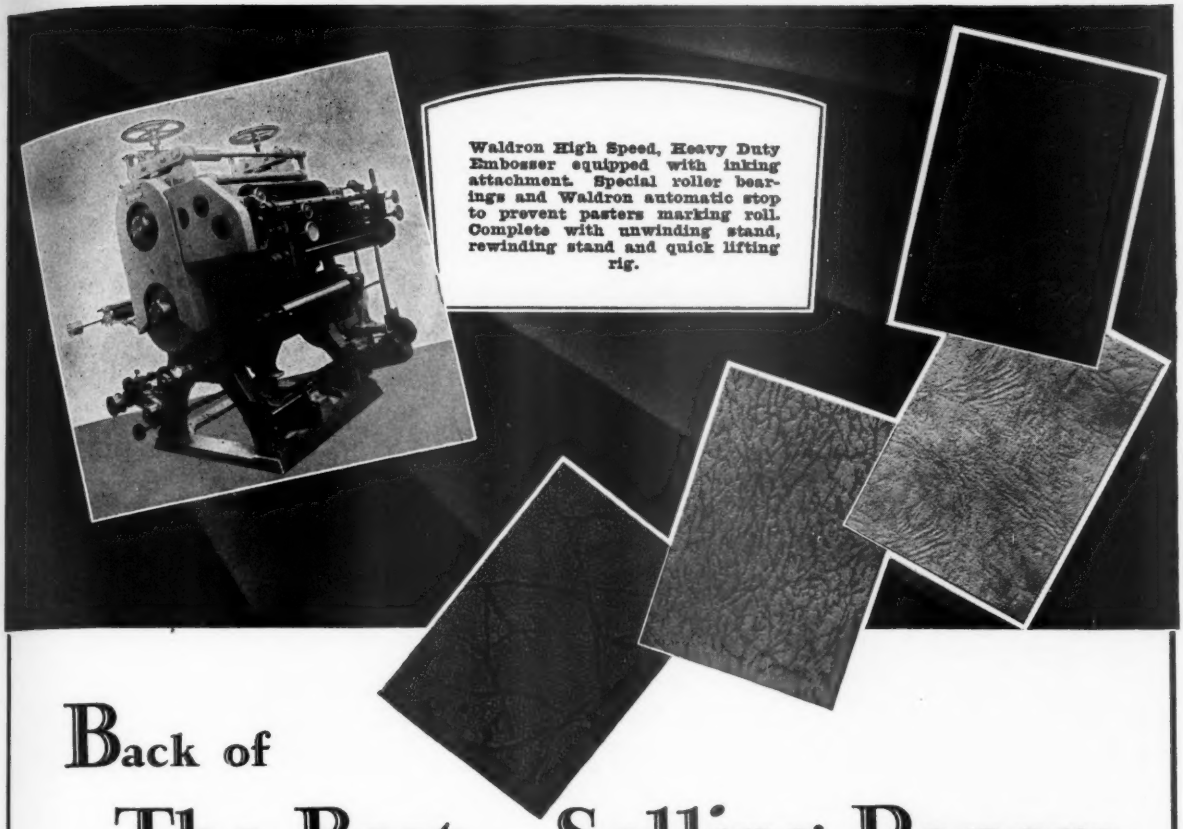
The results are given in the following table:

	Chlorine Reacted in % of total	Chlorine Reacted in % of Wt. of Wood	Chlorine Reacted to HCl in % of Wt. of Wood	Chlorine Chemically Combined	Ratio Chlorine as HCl to Chlorine Combined
Chlorine gas	84.9	17.00	7.32	9.68	1:1.3
Chlorine water	34.65	6.93	1.87	5.06	1:2.7
Chlorine HCl ..	46.7	9.35	3.71	5.64	1:1.5
Chlorine in Carbon-tetra-chloride	90.6	18.20	17.17	1.03	1:0.6

The table shows that the chlorine in carbon-tetra-chloride reacted most completely, i.e., to 90.6% of the total quantity. Chlorine gas follows next, then chlorine dissolved in HCl and finally chlorine water where only 34.65% of the total quantity reacted.

We must assume that the hydrolysis of chlorine is in chlorine water at a maximum while in carbon-tetra-chloride it is practically nil. The amount of chlorine chemically combined in the wood is by far the largest in case of chlorine water. With chlorine dissolved in HCl the hydrolysis is depressed and the chemically combined chlorine decreases. Using chlorine gas, the water pres-

(Turn to page 44)



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WALDRON

Paper Converting Machinery

Chlorine Method of Pulp Production

(Continued from page 42)

ent is rapidly converted into HCl, depressing the hydrolysis of chlorine and consequently reducing the amount of combined chlorine. The quantity of combined chlorine is practically nil in case of carbon-tetrachloride, indicating that the action of chlorine was purely an oxidation, causing quantitative conversion into HCl.

These results indicate that the substituting action of chlorine seems to require a far reaching hydrolysis; conversely the more the hydrolysis is depressed, the greater is the oxidizing action of the chlorine. Both actions of chlorine undoubtedly take place in the large scale application of the chlorination processes and important results may be expected from a careful adjustment of the hydrolysis.

Technical Application

The technical application of the chlorination process for pulp production is carried out at present by two methods: using (1) chlorine gas, and (2) chlorine water. The main representative of the first group is the process of Cataldi Pomilio, while the second group is confined to the process of DeVains.

Chlorine Gas Process

In Italy B. Cataldi attempted the solution of the problem experimentally and commercially and in 1916 he obtained an Italian patent covering the use of chlorine gas for the manufacturer of cellulose. The principal claim of the corresponding French patent is as follows:

A chemical process for the extraction of cellulose from vegetable fibre such as wood, cotton, straw, esparta, etc., characterized by the wood being first cut into small pieces by means of appropriate means, or the fibre is simply crushed.

The material thus prepared is put into an autoclave (which is lined with acid resisting brick), and is given a light washing with an alkaline solution for a definite period of time, depending on the temperatures of the solution. When this washing is completed the liquor is drained off and the air is exhausted from the autoclave until the pressure is reduced to 50 or 60 centimers mercury.

Then there is introduced into the autoclave chlorine gas until the atmospheric pressure is restored and the wood or other substances under treatment is subjected to the action of the gas for a period of time, depending upon the nature of the fibre and sufficient to produce the cellulose.

After the wood has been subjected to the action of the chlorine gas, it is washed with pure water and then placed in a weak alkaline solution the same as the first, but for a period of time less than the first washing. This latter washing has for its object the separation of the cellulose from the other impurities and substances which have been acted on by the chlorine. The pure cellulose is further washed and purified and eventually whitened by a weak hypochlorite solution of lime or soda.

A variation of this method for the extraction of cellulose from cotton, jute or other vegetable fibres depends on the use of hydro-extractors for the removal of the various solutions from the fibre.

An experimental plant erected in Northern Italy in 1916 for the exploitation of this process was unsuccessful. The Italian chlorine industry, greatly stimulated during the war, found itself largely without a market in 1918. When the firm, Electro-Chemica Pomilio of Naples in 1919 took over the process of Cataldi, it was purely for the purpose of finding an outlet for its chlorine and had no connection with the existing pulp industry. Not until 1923 was the process operated on a large scale and undoubtedly the commercial difficulties of changing a purely electro-chemical enterprise to one manufacturing and marketing pulp had much to do with this delay.

The process, as it is carried out today, comprises the following steps:

1.—Assortment and disintegration of the raw material.

2.—Treatment of the fibres in open tanks with a very dilute caustic soda solution.

3.—Separation of the fibres from the caustic soda solution and subsequent washing.

4.—Conveying of the washed fibres to the concrete chlorination chamber and subsequent chlorination. The time of the latter operation depends on the raw material.

5.—Removal of residual chlorine from the chlorine chamber and conveying and washing the pulp.

6.—After treatment of the washed pulp with weak caustic soda solution.

7.—Bleaching.

Compared with the old processes of pulp production the numerous individual operations and steps are outstanding. While this may have advantages for better control of the desired products they are offset many fold by the losses and high labor cost due to numerous operations, which may prove to be very costly.

The Pomilio process is applicable to rice and wheat straw, hemp stems, alfalfa, flax and cotton as well as to soft woods such as poplar. Other woods, particularly the resinous kinds, cannot be used for reasons outlined under the chemical part.

The most important questions are those of economics and of properties of the produced pulp and paper. The latter, compared with pulp and paper produced from the same raw material by the standard processes, show fair strength but great brittleness and are, for this reason, not usable for high grade papers. This defect is largely due to hydrolysis of cellulose caused by the hydrochloric acid liberated. After-treatment with alkali is said to remedy this condition to some extent.

Economically, the process stands out by a high recovery of cellulose. A comparison between manufacture of pulp from wheat straw by the kraft and Pomilio processes is given below as communicated by the Pomilio company:

100 Pounds of Pulp Require:

Kraft Process		Pomilio Process	
Wheat Straw	320 lb.	Wheat Straw	260 lb.
Coal	180 lb.	Coal	15 lb.
Soda Caustic	20 lb.	Caustic Soda	5 lb.
Salt Cake	32 lb.	Chlorine	15 lb.
Lime	34 lb.	Bleach	6 lb.
Sulphuric Acid	4 lb.		
Bleach	20 lb.		

The main disadvantage of the process for American conditions, where the cost of gathering straw and other vegetable fibres is excessive, is that it is not applicable to the common woods.

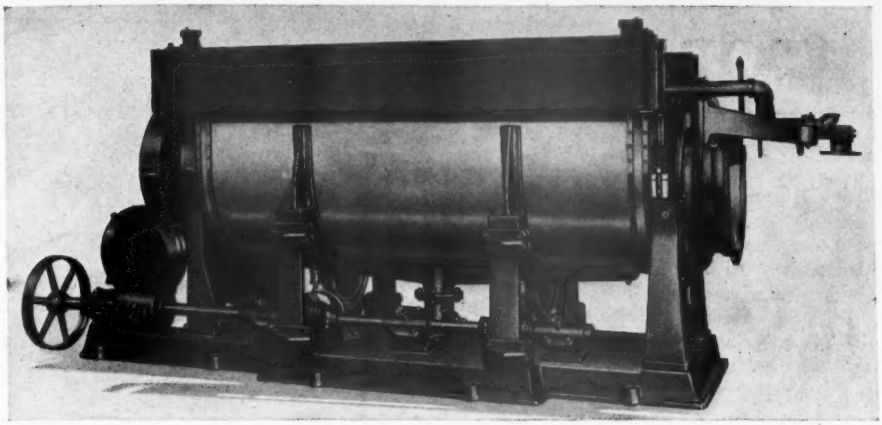
Process Using Chlorine Water

The only representative of the second group of methods is the DeVains process. As early as 1908, DeVains tried to produce pulp from jute fibre by means of chlorine. The attempt was unsuccessful.

The experiments were repeated with more or less success and finally resulted in a patent having as a basis the use of chlorine-hydrate. Since the existence of chlorine-hydrate is limited to a narrow temperature interval, it could actually never be used and chlorine water was introduced instead.

The inventor joined hands with an apparatus firm, with the help of which a working process was finally developed. The individual steps are about the same as in the Pomilio process. The pre-treatment with caustic soda occupies a much larger space than in the Pomilio process, inasmuch as a long cook with comparatively strong caustic soda is required. In the absence of an alkali recovery system, the losses and subsequent costs must be considerable. Great secrecy prevails regarding the apparatus for making chlorine water as well as the apparatus for chlorination.

(Turn to page 48)



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EDITORIAL

Neah Bay Needs A Breakwater

WESTWARD from the protection of the Port Angeles spit out to sea along the wide Straits of Juan de Fuca separating the American and Canadian shores there is no protection for vessels large or small on the American shore. There is urgent need for such protection. Further, such protection is a feasible matter of construction and the logical place is from Waddah Island to the mainland shore at Neah Bay, the most northwesterly community in the United States.

Events of recent years have made it necessary to revise one's estimates of Neah Bay as a point of commercial importance. It is no longer an isolated Indian village used solely by a few native salmon trollers and seal hunters. Today it is the scene of pulpwood cutting operations turning out at capacity about 300 cords of wood per day in both cordwood and chip form.

The fishing industry makes extensive use of Neah Bay as a base. In season one will find at Neah Bay about 3000 salmon trolling boats, 150 long-line halibut boats carrying crews of from 4 to 15 men per boat and 200 purse seine boats carrying crews of from 7 to 9 men per boat.

Neah Bay is the only possible refuge for this multitude of small craft which extracts an important revenue from the fishing banks outlying. The bay offers some small protection from seas from the south and southeast, but the broad sandy curve of the beach lies fully exposed to all the fury of 4000 miles of North Pacific ocean to the West and Northwest and across the 17-mile wide sweep of the Straits in the other direction.

The Coast Guard has a life-saving station at Neah Bay which has a difficult problem in launching its boats in heavy weather. The breakwater would be of immense benefit to this important service branch.

The ground swell rolled up by the sea even in quiet weather offers sufficient disadvantage in moorings. With particular respect to the pulpwood operations this works a particular hardship because Neah Bay has no rail connection—nor highway connection at present, although a road is now being built—and all traffic must be conducted by water. The pulpwood is taken to Puget Sound mills by tugs and scows. Of necessity the exposed moorings make it necessary to conduct the pulpwood operations according to the dictates of the weather. If a protected harbor were offered to shelter the moorings the towing operations would not have to wait on the weather except in the most severe blows.

Neah Bay with a properly protected harbor can be made the base of extensive pulpwood and timber operations. There has scarcely been an axe in this primeval region. Further, the timber in this section is so dense and the regrowth is so rapid and the present operators are so conducting their cutting that it is virtually certain that the Neah Bay operation will not be a cut-and-go proposition with respect to timber but will be a perpetual source of wood.

Nature has accommodatingly planted a small island about three-quarters of a mile from the curving mainland so situated that the construction of a breakwater is a feasible project with relatively small expense. Neah Bay needs a breakwater NOW for the protection of lives and property and perpetuation of important industries.

Senators Favor Research Fund Increase

THE present annual appropriation made by Congress for forest products is $585,000. The McSweeney-McNary Forest Research Act passed by Congress in May, 1928, authorized an increase of $500,00 over a 10-year period. If this total is to be available at the end of the 10-year period, the annual increase should be not less than $50,000.

Just before Christmas the House of Representatives finished with the Agricultural Appropriation bill and referred it to the Senate. After Senate action, it will go to conference.

This bill contains an increase of $35,000 for forest products research, which is $15,000 less than the amount recommended to Congress by the Budget.

Of special interest to the Pacific Coast is the appropriation for work in connection with the developing of commercial processes of manufacturing paper from Western woods. The significance of this to the West Coast lumber and paper industries is the fact that there is an enormous potential supply of raw materials available and cheap water transportation possibilities. In fact, as a provider of forest products to the nation, the Pacific Coast occupies a position of unusual prominence and is, by reason thereof, entitled to every consideration for the most efficient utilization of these resources not only for today, but with the supply of tomorrow in mind.

The Pacific Logging Congress meeting in Seattle last October, passed a resolution asking for an appropriation of $30,000 for research in the pulping of West Coast woods. Such an appropriation would place investigative research in pulping West Coast woods on a basis comparable to that now being undertaken by the Forest Products Laboratory at Madison, Wisconsin, on woods from the Southern states. Congress last year appropriated $25,000 for this specific purpose.

The budget made out by the Forest Products Laboratory for the next year carried a specific request for a sum for $10,000 for "developing commercial processes for the production of light colored papers from western woods."

A letter from C. E. Curran, Acting in Charge, Section of Pulp and Paper, at the Madison laboratory explains in part:

"Ten thousand dollars was requested for this study (on Western woods) as being a minimum amount which we could spend advantageously on western woods. In case it is accepted as it stands we will begin our work on an investigation of pulping of Douglas fir, particularly relative to the production of strong light papers. In case the interest in western work should justify a greater appropriation we are prepared to extend the study immediately to other western species. This is in effect what happened in the case of southern woods work now in progress. The original appropriation of $15,000 was increased to $25,000 which is the sum we are obligated to spend in this work during the current year."

It will be noted that the Forest Products Laboratory estimated that $10,000 was the MINIMUM sum which could be expended advantageously. It goes without saying that an ADEQUATE appropriation would more nearly permit the accomplishment of something worthwhile.

The need for an adequate appropriation for research on Pacific Coast woods has been laid before the several Congressmen and Senators of Washington and Oregon

(Turn to page 48)

Where Records Were Made—And Broken

THE 304 and 264 inch Bagley and Sewall Timken-equipped paper machines at the Great Lakes Paper Co., Ltd., at Ft. William, Ontario, have made—and broken—some remarkable records. Their performance has furnished valuable and convincing data on the actual effect of Timken Bearings on paper machine operation.

When the 304 inch machine, the largest ever built, was started for the first time it required only 45 HP to turn the dryer section over, without clothing. This is quite a contrast to the usual custom of tying in the breakers when starting a new machine.

Early in its career the 264 inch machine broke all production records by making 151 tons of paper in 24 hours. It has also furnished interesting power readings as compared with those taken on a plain bearing machine of the same size. Its breakout demand was 80 KW as against 328 KW. Its average demand during acceleration was 234 KW at 200 volts as against 306 KW at 219 volts, or a saving of 20%. And the integrated power demand saving is in the neighborhood of 20% also.

Such are the benefits arising from Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS*, and Timken steel.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

Chlorine Method of Pulp Production

(Continued from page 44)

If we disregard the cost of chemical treatment, the economy of pulp process may be judged by the yield of cellulose recoverable from the cellulose present in the raw material. The recoverable cellulose by the sulphite, soda and kraft process is less than 70% of the cellulose content of the wood used. The soda process applied to straw gives a cellulose yield of about 60%. The chlorine gas process of Pomilio for the same material gives a yield of about 76.5%.

Conclusions

The advantages and disadvantages of the chlorination process for pulp production may be summed up as follows:

The best process of chlorination yields a recovery of cellulose about 20% higher than by standard processes.

The pulps are inferior in physical properties and moreover the chlorination processes are not applicable to the more common woods.

Evidently chlorination is a milder form of delignification than cooking, hence the higher yield. If the cellulose yield of the standard processes can be increased by shorter cooks and subsequent chlorination, we have achieved an economic progress by better utilization of our natural resources.

Represents Pomilio Chlorine Pulping Process

Recent advice from Umberto Pomilio of Naples, Italy, states that Charles A. Newhall, consulting chemist, Smith Tower, Seattle, has been appointed representative of the Pomilio Brothers Corp., owners of the "Cataldi-Pomilio" patents covering the basic features of pulp production by chlorination methods.

The Pomilio Brothers have for many years operated a plant for producing pulp and paper in connection with their electrochemical works at Naples and are now erecting a large mill—the Celulosa Argentinia S. A.—at Rosario de Santa Fe, Argentina.

The Naples plant uses mainly esparto grass and some wheat straw as a raw material while the Argentine plant will use wheat straw and flax straw.

The Pomilio process produces a high grade white pulp that is in large demand for uses to which wood pulp is not adapted. In the Pacific Northwest, where there is a larger concentration of high grade wheat straw than anywhere else in America, it is said that the manufacture of Pomilio Process straw pulp can be profitable if a high grade pulp is produced for shipment to Eastern and Midcontinent markets, and thus a new industry may be developed to furnish a new outlet for an agricultural product that is now burned up each season.

Mr. Newhall has developed a new process whereby wood pulp screenings are converted into a high grade cellulose by a chlorination method having some of the features covered by the basic Cataldi-Pomilio patents. By joining forces the Pomilio Brothers and Mr. Newhall will extend the use of their inventions to wider fields and will for the first time bring the straw and grass pulp industry into alignment with the wood pulp industry.

A discussion of the chlorination method to the production of cellulose from sulphite screenings and other Pacific Coast materials has been scheduled for later publication.

Senators Favor Research Fund Increase

(Continued from page 46)

and it is most encouraging to note in replies from these Western men in Washington, D. C., that the proposition meets with favor.

Washington's Senator Wesley L. Jones, chairman of the Senate committee on Appropriations, writes: " . . . I assure you that this matter will have my most careful consideration and attention when the appropriation bill covering this item comes up."

Likewise Senator C. C. Dill, Washington, says that he is heartily in accord with the idea. Senator Jones will work with him to secure the necessary appropriations.

Congressman John F. Miller from Washington asserts that he "can well appreciate what the development of practical processes for the utilization of the great quantities of waste material now left on the ground after logging operations would mean to this industry of ours which is of such paramount importance and shall be only too glad to give legislation of this character my best interest when it shall come to the Floor of the House. I shall also be pleased to cooperate with the members of our own State Delegation in Congress as well as the members from other states vitally interested in sponsoring such legislation."

"I am in favor of sufficient appropriations to take care of the pulp study of all western woods," says Sam B. Hill, Washington, member of the Ways and Means Committee.

Senator Frederick Steiwer of Oregon also favors the appropriation: He says, "I am, naturally, interested in any movement that will tend to aid the lumber industry of the Northwest. When the matter of an appropriation for research on Pacific Coast woods comes up, I will be glad to give it my very best attention."

"I will be glad to cooperate in any movement to enable such waste products of our forests to be put to beneficial use," says Congressman Willis C. Hawley, Oregon.

Representative John W. Summers, Washington, writes, "I have read your editorial (For A Reapportioning of Research—PP&PI, Dec. 1929) with interest and only regret that it was not brought to my attention at an earlier date. I am a member of the Appropriations Committee of five which framed the bill containing the appropriations for the Forest Products Laboratory." Since the bill had already been passed on to the Senate, Representative Summers sugegsted the matter be taken up very specifically with Senator Jones at once, as the only chance of amending the bill is while it is in the Senate.

Representative Summer's suggestion is worthy. These men in Washington will have more weight to their argument in getting through the ADEQUATE appropriation if the Pacific Coast industry lends a solid support. Have you written or wired them?

Paper Mill Votes First Dividend

Business with the Pacific Coast Paper Mills, Bellingham, Wash., has been good and its outlook for the new year is bright. The company has declared its first dividend. Stockholders have received notice from President J. J. Herb that a dividend payable in January and approximating $4,000 had been voted. The dividend is payable on all the stock issued up to July 1, 1926, and averages eight months interest at 8 per cent.

IONEERS TOGETHER

WHEN WE SAY "PIONEERS TOGETHER" IT IS NO SENTIMENTAL HARKING BACK TO "THE GOOD OLD DAYS" WHICH PROMPTS THE THOUGHT. RATHER IT IS RECOLLECTION OF THE MUTUAL COOPERATION WHICH EXISTED BETWEEN THE FIRST PULP AND PAPER MILLS AND THE FIRST CHLORINE PLANT OF THE PACIFIC COAST . . . COOPERATION WHICH WAS BASED ON MUTUAL APPRECIATION OF THE DIFFICULTIES OF THOSE DAYS, AND OF THE HARD-BOILED FACT THAT FOR EVERYONE IT WAS A CASE OF "FISH, CUT BAIT . . . OR SWIM ASHORE."

IN THOSE DAYS THERE WAS BUT ONE SOURCE OF CHLORINE FOR THE PACIFIC COAST INDUSTRY . . . GREAT WESTERN ELECTRO-CHEMICAL COMPANY. TO HAVE THE SUPPLY ABSOLUTELY CERTAIN WAS VITAL . . . AND IT NEVER FAILED.

TODAY GREAT WESTERN, HAVING STOOD THE ACID TEST OF THE PIONEER DAYS, CONTINUES TO SUPPLY THE WESTERN INDUSTRY WITH PRODUCT AND SERVICE WHICH ARE ALWAYS DEPENDABLE.

GREAT WESTERN ELECTRO-CHEMICAL COMPANY

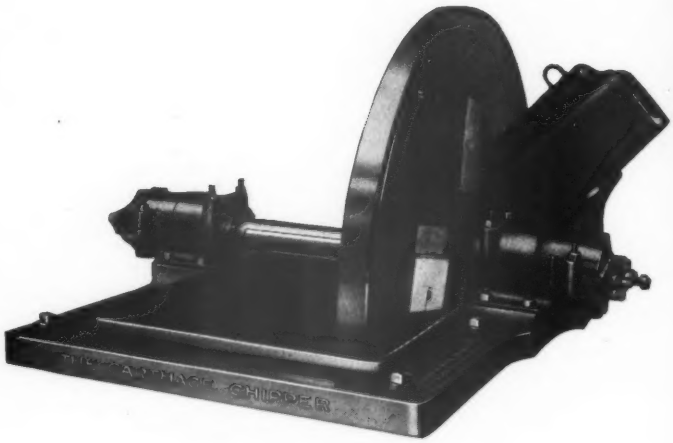
SAN FRANCISCO
LOS ANGELES
PLANT: PITTSBURG, CALIF.

"... WE HAVE STANDARDIZED

THE INTERNATIONAL WOOD & SULPHITE COMPANY are one of the many large producers of chips who have standardized on CARTHAGE equipment. Clean, uniform chips are produced in their fourteen plants at low cost from sawmill refuse, slabs and edgings.

CARTHAGE CHIPPERS pay for themselves in a few months. Their maintenance expense is almost negligible. The use of CARTHAGE machines in your own mill assures you of dependable service and efficient operation.

CARTHAGE manufactures other machines incorporating the same dependability and efficiency as its chippers. Chip crushers, chip screens, grinders—three and four pocket of various widths up to forty-eight inches, pulp shredders, wet machines, deckers, cylinder moulds, digester blow-off valves and wood washers are all qualified to bear the name CARTHAGE.



The following mills in the Pacific Northwest are among those now using Carthage Chippers:

International Wood & Sulphite Co., 15 Chipping Plants
Everett Pulp & Paper Co., Everett, Wash.
Grays Harbor Pulp Co., Hoquiam, Wash.
Inland Empire Paper Co., Millwood, Wash.
Crown Willamette Paper Co., Portland, Ore.
Powell River Paper Co., Powell River, B. C.
Washington Pulp & Paper Co., Port Angeles, B. C.
Rainier Pulp & Paper Co., Shelton, Wash.
Union Bag & Paper Power Corp., Tacoma, Wash.
Northwestern Pulp & Paper Co., Tacoma, Wash.
Cascade Paper Company, Tacoma, Wash.
Columbia River Paper Mills, Vancouver, Wash.
Pacific Mills, Ltd., Vancouver, B. C.
Fidalgo Pulp Mfg. Co., Anacortes, Wash.
San Juan Pulp Mfg. Co., Bellingham, Wash.

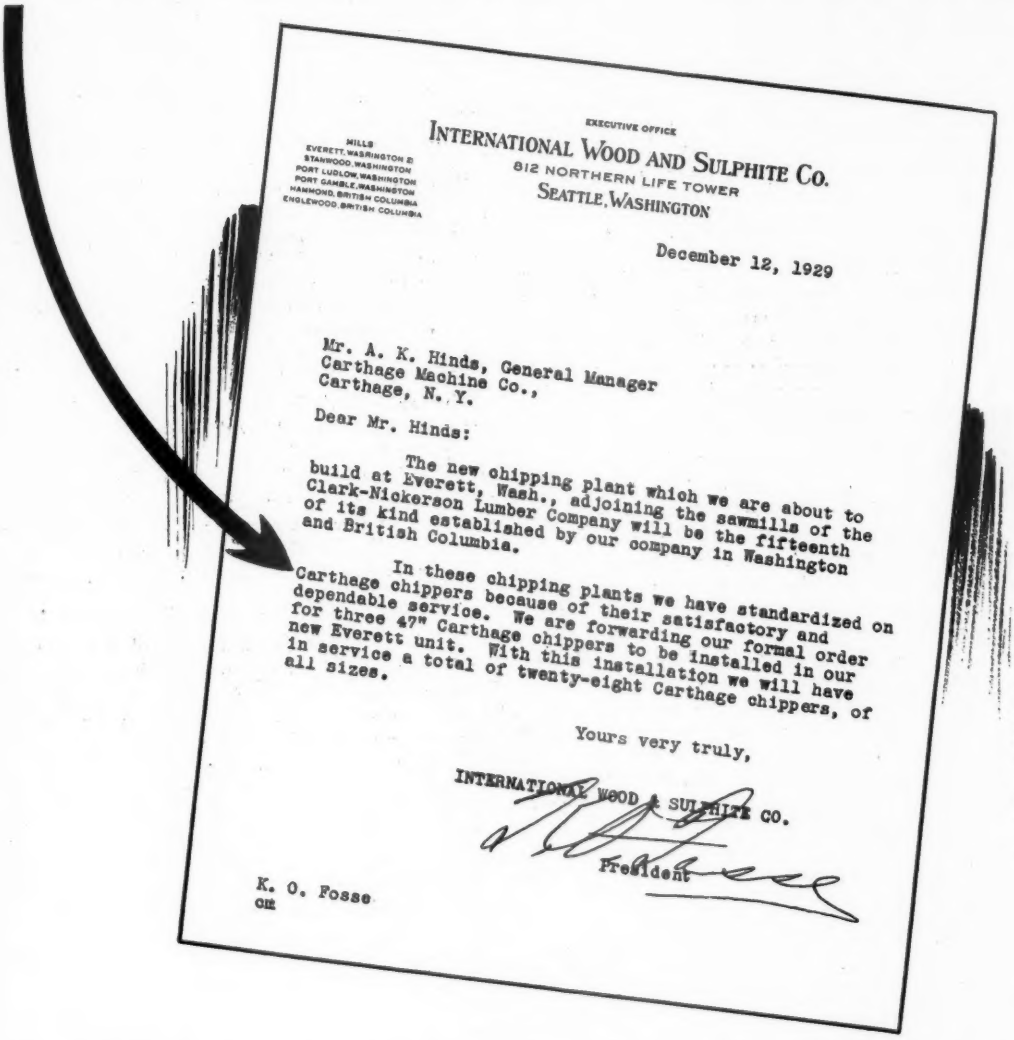
Ask us for further details and prices

Carthage Machine Company

Manufacturers of Pulp and Paper Mill Machinery

CARTHAGE, NEW YORK

ON CARTHAGE CHIPPERS *because of their* SATISFACTORY and DEPENDABLE SERVICE"



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EVERETT, WASHINGTON
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PORT LUDLOW, WASHINGTON
PORT GAMBLE, WASHINGTON
HAMMOND, BRITISH COLUMBIA
ENGLEWOOD, BRITISH COLUMBIA

December 12, 1929

Mr. A. K. Hinds, General Manager
Carthage Machine Co.,
Carthage, N. Y.

Dear Mr. Hinds:

The new chipping plant which we are about to build at Everett, Wash., adjoining the sawmills of the Clark-Nickerson Lumber Company will be the fifteenth of its kind established by our company in Washington and British Columbia.

In these chipping plants we have standardized on Carthage chippers because of their satisfactory and dependable service. We are forwarding our formal order for three 47" Carthage chippers to be installed in our new Everett unit. With this installation we will have in service a total of twenty-eight Carthage chippers, of all sizes.

Yours very truly,

INTERNATIONAL WOOD & SULPHITE CO.

President

K. O. Fosse
cm

Carthage Machine Company

Manufacturers of Pulp and Paper Mill Machinery

936

CARTHAGE, NEW YORK

Canadian Association To Meet

The 17th annual meeting of the Canadian Pulp and Paper Association will be held in the Pulp and Paper Research Institute, Montreal, on Friday, January 31. The program will include reports from the several sections of the association, a review of the work of the Institute and the annual election of officers.

Preceding the annual meeting the Technical section will hold a two-day meeting on January 29 and 30. This year's program centers on the topic: "Manufacing Methods in Pulp Mills."

Change Firm Name

The Pacific States Pulp & Paper Co. filed an amendment to its articles of incorporation last month, changing its name to the Pacific States Forest Products Co., and its place of business from Longview to Spokane, where the company has offices in the Hutton building. Plans recently were announced for the erection of a pulp mill in the vicinity of Priest River, Idaho. Construction has not been started, however, according to reports.

$6 Water Rate on Pulp Continued

The Eastbound Intercoastal Conference has extended the 30-cent rate on wood pulp from Pacific Coast ports to Atlantic Coast for the duration of 1930. A six months extension was first granted, but was extended for the full year at the December meeting. The rate is equivalent to $6 per ton on wood pulp in suitable bales having a minimum density of 51 cu. ft. per short ton.

Quillayute River Jetty Quite Certain

Indications that an appropriation of $112,000 for a jetty at the mouth of the Quillayute River may be obtained in the present session of congress, are seen in a report to the port of Port Angeles by Senator Wesley L. Jones. Jones informed the port that he "practically guaranteed" the item would go through congress in some form or other early this year.

Federal engineers recommended a jetty at the Quillayute after making an extensive survey. The river is used extensively in pulpwood cutting operations.

Senator Jones also told the Port Angeles Chamber of Commerce that he would endeavor to obtain favor for a proposed breakwater at Neah Bay, site of a large pulpwood camp and chipping plant. Army engineers years ago approved the plan. It is contended that a breakwater is needed to protect the harbor as a port of refuge as well as a shipping center.

New Westminster Rebuilding

The first unit of the rebuilt plant of Westminster Paper Co., New Westminster, B. C., will be in operation by the first of April, according to R. H. Arnett, secretary-treasurer and manager. Construction is now well under way, the last detail of financing having been cleared with ratepayers of New Westminster guaranteeing interest on $300,000 bonds of the company.

Before the bond issue is available for the use of the company, $500,000 must be expended on the new plant. When the mills are completed it is expected that a total of $2,000,000 will have been expended.

The old plant was destroyed by fire in July, 1929.

The first two buildings, which are now well under way, will cost approximately $150,000, and the installation of machinery will bring the cost of the unit to $800,000. Last year representatives of the company made a thoro survey of the market situation and recently completed a sales arrangement with two large eastern Canadian manufacturing concerns which gives them national distribution for many of their products.

The first unit consists of a machine room building 230 feet in length, and a three-story finishing room, 100 by 160 feet of fireproof construction. A wharf and boiler house have already been rebuilt.

The company has been operating at New Westminster for seven years and has developed one of the most successful industries of its kind in the West, with a diversification of products perhaps unequalled in Canada.

St. Helens Votes Extra Dividend

Directors of the St. Helens Pulp & Paper Co., St. Helens, Ore., last month declared an extra dividend of 2% in cash, equivalent to 20 cents a share, payable immediately. At the same time the regular quarterly dividend of 2% was authorized.

The dividend ratio established by the declaration of the Christmas payment places the stock on a 10 per cent basis, as it has paid regular quarterly dividends of 2%.

The strong cash position of St. Helens Pulp & Paper Co. is indicated by this dividend, as it is necessary, according to the terms of its bond issue, for the concern to have a surplus of $500,000 before dividends may be paid on the common stock. No preferred has been sold.

Although no estimate of earning is available at this time, it is understood that business has been brisk.

Zellerbach Southern Branches Hold Conference

The annual Zellerbach Paper Co. sales conference was held December 27 with over 200 present and with Long Beach, San Diego and Arizona branches represented—the meeting being held at the Commercial Club at Los Angeles. Clem Reis, city sales manager of stationery and wrapping paper presided while the toastmaster was D. J. Crickelair, sales manager.

The conference was enthusiastic and successful.

New Superintendent At Shaffer Box

S. Johanson has been appointed superintendent of the 50-ton sulphite pulp mill of the Shaffer Box Co., Tacoma, succeeding R. A. Sipes, resigned. Mr. Johanson is a comparative newcomer on the Pacific Coast. He was formerly with the Algonquin Paper Co. of New York state.

Anacortes Mill Gives Christmas Turkeys

Each employe of the Fidalgo Division of the Puget Sound Pulp and Timber Co. at Anacortes, Wash., had a surprise when the Christmas-time pay checks were received. With each check was an order for a turkey for the Christmas dinner.

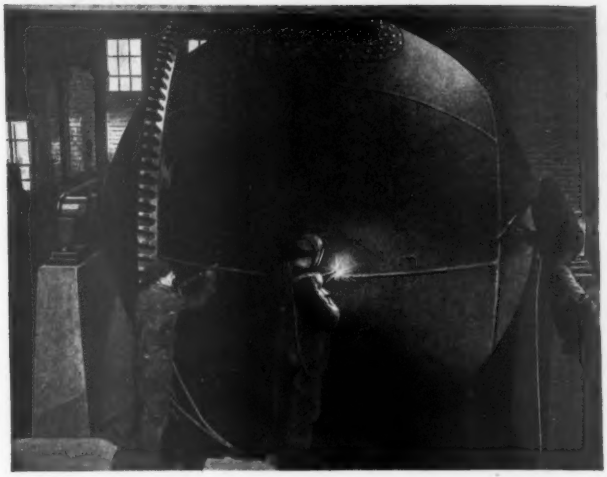
There are 80 men employed at the pulp mill. The boys are grateful to the management, and expressed their appreciation through the columns of an Anacortes paper to Cal B. Everitt, N. D. Dillon, A. A. Owen and the president and directors of the company.

Aberdeen May Sell Some Water

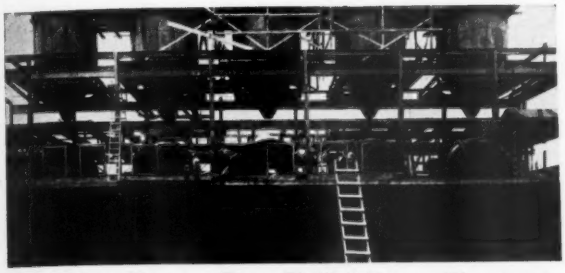
Hoquiam, Washington, plans to purchase industrial water from Aberdeen, according to recent statements by Mayor Martin F. Smith and Hoquiam city councilmen. The plan has been under consideration for several months. Possibility of the establishment of pulp mills in Hoquiam is causing the city fathers there to begin to cast about for a larger industrial water supply.

F. G. Statham, formerly with the Union Bag & Paper Co., has been appointed sales representative of the Graham Paper Co. in the Spokane district.

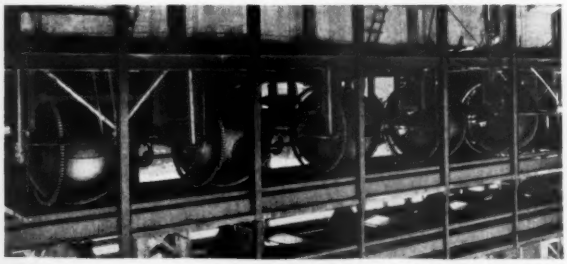
You Can *Rely On* Biggs All-Welded Rotary Digesters



Pictured above is the Biggs Field Welding Crew putting the finishing touches on a Biggs 14-foot diameter All-Welded Rotary Digester at the plant of the Sylvia Paper Board Company, Sylvia, N. C. This is one of many installations shown in Biggs' new folder, "Unusual Steel Plate Construction."



Five 14-foot diameter Biggs Welded Rotary Digesters in operation at the plant of the John H. Heald Company, Lynchburg, Va.



These five 14-foot diameter Welded Rotary Digesters were built and erected by Biggs for The Harriman Company, Harriman, Tenn.

You see on this page a total of eleven 14-foot diameter All-Welded Rotary Digesters, built and erected by Biggs for use in connection with chestnut chip and similar processes where riveted construction proved unsatisfactory.

The difficulties of maintenance have been completely overcome. There are no more leaks around rivet heads and seams to contend with.

All Biggs high pressure welded vessels are built under procedure control, and are accepted by all leading insurance companies without limitation as to size or working pressure. No matter what your requirements, whether on rotary, tumbling, or stationary digesters, or similar steel plate work, Biggs can serve you to your entire satisfaction.

You will be interested in the many different types of "Unusual Steel Plate Construction, Riveted or Welded", appearing in a new folder with that title. May we send you a copy?

THE BIGGS BOILER WORKS COMPANY

Buchtel and Case Ave. **AKRON, OHIO**

NEW YORK **CHICAGO** **DETROIT**

BIGGS **ROTARIES** *for years of dependable cooking and bleaching...*

The Biggs BOILER WORKS CO. AKRON OHIO

T-A-P-P-I

Pacific Coast Section

The following letter was sent out the first week in January to a rude list of potential candidates in the Pacific Coast Section of T. A. P. P. I.

To the Technical Men of the Pulp and Paper Industry:

Two very successful conferences of technical men of the pulp and paper industry have been held during the last two years. The attendance at each of these gatherings was considerably in excess of one hundred and the attendance at the banquet in each case was about eighty. The banquet in Tacoma was especially a great success resembling a great college "pep" rally more than anything else. A general and spontaneous desire to effect an organization with regular meetings has been expressed to the writer during the past three years, and in response to these wishes, the conferences above mentioned have been held.

The national organization of T. A. P. P. I. through its officers President P. H. Glatfelter and Secretary R. G. MacDonald who have visited most of the mills, has authorized the formation of a Pacific Section. The latter is merely composed of those members of T. A. P. P. I. who reside in the states and provinces bordering on the Pacific Ocean. There are no grades of membership or dues other than those of the national organization and the latter finances the expenses of the Pacific Section. Some seventy members of T. A. P. P. I. living in the Pacific States and Provinces now comprise the new section of T. A. P. P. I. With a little effort it is believed that this membership can be doubled. A section of two hundred members will constitute a fifth of the National membership and the programs and social opportunities of the Pacific Section can be made an enjoyable and valuable as those of the National body.

I shall be very happy to send you an application blank for membership if you will drop a card to me requesting it.

Very sincerely yours,

H. K. BENSON, Secretary,
Pacific Section, T. A. P. P. I.,
University of Washington,
Seattle.

What Matters The Score, Anyway?

That plowed section of the golf course at the Chehalis, Wash., Country Club is explained by the fact that four Portland box makers stopped en route to a recent Seattle box makers' meeting to try to convince each other that each was the better player.

Those comprising the foursome were L. W. Milbrandt of the Pacific Paper Box Factory, Felix L. Dielschneider of the Oregon Paper Box Factory, Walter Grigsby of Grigsby Brothers Paper Box Factory, and Payson Thompson of the Portland Paper Box Co.

Conflicting stories regarding the game were told on return of the quartette to Portland. Mr. Thompson, who admitted after severe grilling that he kept score, insists that he and Mr. Milbrandt bested their opponents by 29 strokes; on the other hand, Messrs. Grigsby and Dielschneider are equally positive that they themselves hung up a new record playing the ancient and honorable game.

Swedish Kraft Pulpmen Merge Sales

The Swedish Sulphate Manufacturers' Quotation Union and the Finnish Cellulose Union have recently been discussing the possibilities of closer relationship between their mills, particularly with respect to marketing. Representatives of 80 percent of Sweden's sulphate capacity met in Stockholm and agreed to form a selling organization. Swedish sulphate production for 1930 (excluding a new mill projected by the Kreuger combine) is estimated at 600,000 tons; Finnish production, 130,000 tons.

Scandinavian Pulp and Paper Market

Except for unusually heavy transactions in bleached sulphite pulp destined for the rayon industry, the sulphite market failed to show any marked improvement during the fall months. The demand for easy-bleaching sulphate was only fair, and while unbleached sulphate pulp was in better demand, this was only at the expense of some price concessions. In the paper market conditions were much the same. The renewed activity in sales, which was expected at the end of the summer season did not materialize.

In the Chinese market, Japan is offering stiffer competition to Scandinavian manufacturers, and the opinion is expressed that Scandinavian paper manufacturers who have been specializing in China cap and thin printings may find it well to turn their attention to other lines.

In the South American countries, with the exception of Brazil, conditions have been more satisfactory.

Conditions in the Norwegian paper closely resemble those in the Swedish market. The turnover is fairly small and prices show an inclination to decline. Newsprint manufacturers report that while they are booked ahead for several months, sales for 1930 delivery have been light and have been entered at slightly reduced prices.

In the Finnish market strong and easy-bleaching sulphite have been in better demand than bleached sulphite, which has shown some weakness. In the sulphate division, the kraft market continues dull, although there is a fair demand for easy bleaching sulphate. With the exception of the news print market, where sales for 1931 delivery are going forward, conditions are generally unsatisfactory. Source: Paper Division, U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce.

Question of Swedish Paper Mill Wages Up Again

Notice for terminating the agreement between Swedish paper mill employers and their workers, which terminates January 31, 1930, has been given on the part of the workers. The proposal for a fresh agreement on the part of the workman demands a rise in wages and changes in the general provisions contained in the expiring agreement. Swedish employers, on the other hand, in their notice terminating the agreement, while they do not request a reduction in minimum wages, do demand that the piece work rates be further revised.

Norwegian Mill Studies Rayon Requirements

An interesting development is the installation of a complete plant for producing artificial silk at the Borregaard plant in Sarpsborg, Norway. This is not for commercial production, but merely for experimental purposes, so as to provide a constant quality control under actual manufacturing conditions. As an example of a most progressive marketing policy, this development has few if any parallels, and is an indication of the importance attached to meeting the exacting requirements of rayon manufacturers. Norway has given more attention to this market than Sweden or Finland—particularly the Borregaard concern, which produced over 60,000 tons of bleached pulp in 1929. It will have a rather formidable new competitor when the new mill of the German Waldhof concern, now being built in Finland, comes into production in 1930.

Vertical Conveyor Front

Ample Wearing Shoes

Vertical Guard Off-set

T-head Rivet

1 **Here is correct design, sound engineering that makes the whole conveyor system *function* with the ultimate minimum of interruption and care.**

2 **And here is superior material. Strength to the core; toughness all through the link and rivet; ductility; and a surprising rust-resistance.**

We supply ALL chain needs promptly. And we have helpful engineering aid at your service.

Puget Sound Machinery Depot

SEATTLE

Office and Salesroom:
322-324 First Ave. So.

68 First St.
Portland, Ore.

P.S.M.D.
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P.S.M.D.
P.S.M.D.
P.S.M.D.
P.S.M.D.

When writing PUGET SOUND MACHINERY DEPOT, *please mention* PACIFIC PULP AND PAPER INDUSTRY.

Forest Survey Begins

Recognizing the need for basic facts on the forest resources of the nation Congress in 1928 included in the McSweeney-McNary Act provision for making a forest survey in the United States.

The Pacific Northwest Experiment Station of the U. S. Forest Service, 514 Lewis Building, Portland, is now ready to start its part of the survey in the Douglas Fir region, beginning its work in Washington county, Oregon.

Horace J. Andrews, an experienced forester, comes from Michigan the first of the year to head the Northwest work. Several additions to staff are being made.

Tentative working plans for the survey have already been drafted and it is hoped to complete the work in three years.

The survey has many phases. It is really an economic study, paying particular attention to relation of timber supplies to industries, transportation, etc., with forecasts on future supplies. I will encompass a complete and detailed inventory of timber stands by areas and species.

Thornton T. Munger, director of the Pacific Northwest Experiment Station, asserts that a bountiful mass of information on timber resources is already in existence but that it exists in perhaps 50 different sources, including federal, state, county and private cruise records. A fundamental object of the present survey will be to coordinate this scattered information.

The survey will have many uses, e. g., forming a guide for acquisition of lands for public forests, tax reforms.

Going Ahead at Powell River

Decision of the Powell River Company relative to the type of paper machine to be installed in the new production unit following completion of the Lois River power program will probably be dependent on a trip likely to be made by R. Bell-Irving, mill manager, to various mills in the East.

Mr. Bell-Irving's proposed trip will be for the purpose of acquainting him with the performance of various types of paper machines under different conditions. He plans to spend most of his time in Quebec and Ontario and may visit some of the United States machine manufacturers. Shortly after his return to the Coast tenders will be called for according to his specifications.

Meanwhile work is progressing rapidly on all fronts at Lois River, with the exception of the dam project, which naturally awaits the coming of low water period. Stuart Cameron & Co., general contractors for the $6,000,000 job, which is to provide an additional 18,000 h.p. for the Powell River company, is pressing construction of the right of way from Stillwaters to Powell River; excavation is under way for the power house at Stillwater and the new mill buildings, and boring of the 5,880-foot tunnel has been commenced from both ends. The contractors have met with no setbacks so far, and operations have been continued without interruption ever since first ground was broken early in December.

Two Eastern paper mills went on the auction block in December: Rollstone Paper Co., Fitchburg, Mass., and Kaydeross Paper Co., West Milton, N. Y.

* * *

Cornstalk Products Co., Euromerican Cellulose Products Corp., and individuals are being sued by minority stockholders of Euromerican for $8,000,000 on certain Dorner patents.

In Regard to News Print

News print went through its annual death throes in the several weeks just passed. Great was the commotion thereof, and greater was the diversity of opinion. From the ensemble we have these high points:

After a year of $55 news print the manufacturers decide that $60 is a whole lot more like it.

Premiers Taschereau of Quebec and Ferguson of Ontario back up the move with cries of, "We can not stand aside and see Canada's forests dissipated."

Answering din from the newspaper publishers that the worthy premiers are foils for the mill operators.

Threat of publishers they will retaliate price increase and reduce news print consumption by reducing size and number of pages.

Abitibi and St. Maurice Valley mills turn from words to action with offer of contract effective January 1, 1930 at $60 per ton, on three year basis, less $5 per ton for first half 1930.

Adolph S. Ochs, publisher of the New York Times, who used lots of news print but makes it in his own Canadian mill, says $55.20 is adequate price. If forced to make a contract he "would make it at lowest possible price for one year only" and sit tight.

International Paper, generally blamed for upsetting the cart last year, sits quietly on the bench while the others fight the preliminaries.

Publishers rattle bones in the closet and hint of moisture in stock of five major news print companies that have increased in capitalization from $150,000,000 in 1922 to exceeding $435,000,000 as of January 1, 1929.

Other side of the fence yells over that artificial boosting of price would simply bring more marginal mills back into production and further aggravate over-production.

International Paper gets into game in last quarter, announcing $55.20 price will continue first six months 1930 subject to change with 30 days notice thereafter.

And from here and there in the general melee was heard:

A rap at the Canadian Newsprint Institute that it was a supertrust designed to create arbitrary, not competitive prices; to restrict output and wipe out surplus; divide territory and apportion tonnage; to make airtight agreements that could not be busted from without or within.

Fears that wolfishness for prices suicidal to mills would wreck the industry, destroy sources of supply and bring a quick rebound to prices very much higher in a few years.

A bomb at the mill owners' feet that they had never supported their prices with actual production costs.

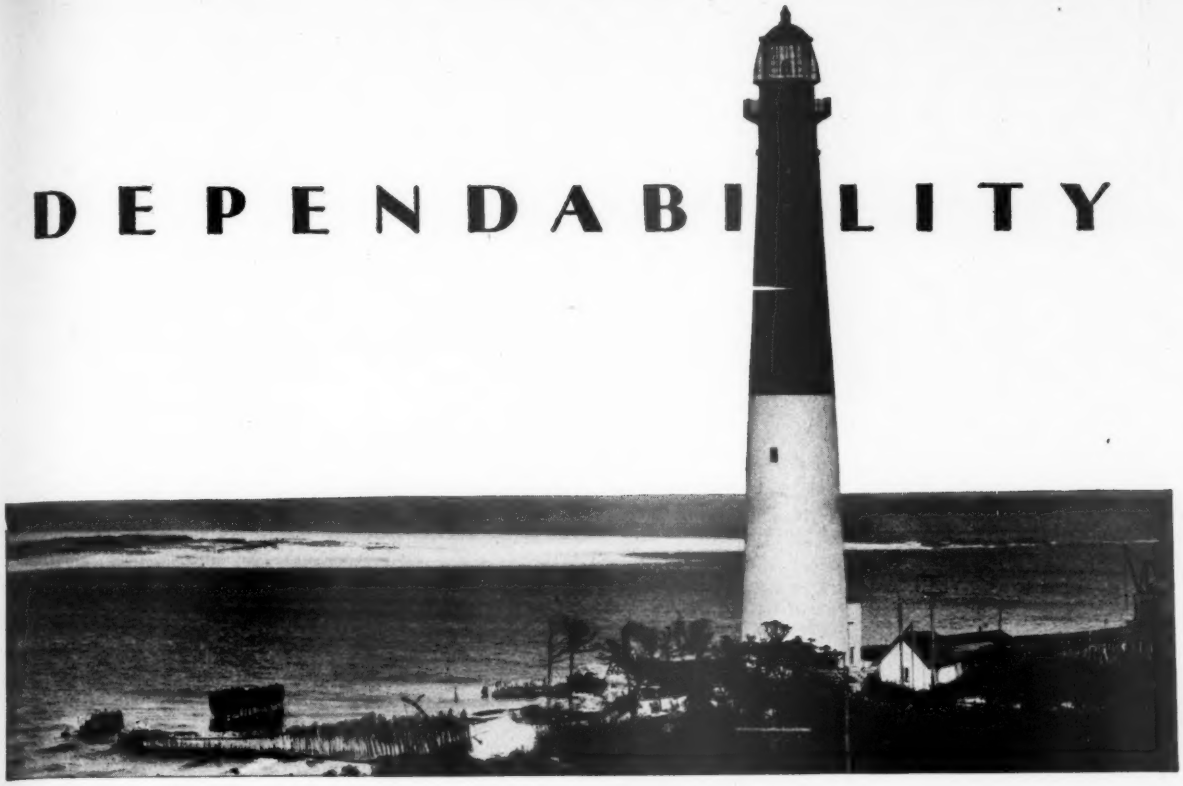
A suggestion from the publishers conference that whatever temporary settlement was made should be supported by measures looking to permanent relief, intimating that United States publishers should look to developing new supplies in the Western states and Alaska.

Cries that low prices tend to eliminate non-operative items from mill budgets, particularly for forest research which will have much to do with governing tomorrow's prices.

Strong hint that publishers are giving away their commodity by not charging adequate advertising rates, attempting to pass this bad judgement back to the hills.

In the December issue it was reported in error that A. C. Silliman, chemist at the Spaulding Pulp & Paper Co., Newberg, Oregon, had joined the new mill of the Sitka Spruce Pulp & Paper Co., at Empire, Oregon. Mr. Silliman is still with the Spaulding company.

DEPENDABILITY



As dependable as the light house which flashes its signals night after night, year after year, Foxboro Instruments may be expected to give accurate service with a minimum of attention.

Twenty years have been spent in improving the design of Foxboro Instruments for recording, indicating and controlling, temperature, pressure, humidity and flow. The world's oldest manufacturer of temperature recorder—controllers offers to industry an ideal way of recording and controlling process conditions.

This is the Foxboro Guarantee Seal. It is sealed to each Recording and Controlling Instrument.

The Foxboro Automatic Temperature Recorder-Controller maintains critical process temperatures at the exact degree of temperature desired.

THE FOXBORO COMPANY
Neponset Ave., Foxboro, Mass., U. S. A.

WESTERN OFFICES:
Los Angeles, 443 S. San Pedro St.
San Francisco, 461 Market St.
Portland, Ore., 816 Lewis Bldg.

New York	Boston	Tulsa
Detroit	Philadelphia	Cleveland
Salt Lake City	Atlanta	Rochester, N. Y.
Chicago	Pittsburgh	Dallas

FOXBORO
REG. U. S. PAT. OFF.
THE COMPASS OF INDUSTRY

Furthermore Foxboro Engineers can tell you the correct application of the Instrument to the process. This broad engineering experience is based on years of study of the Instrument requirements of many industries. Foxboro Engineering Service is as dependable as the Instruments themselves.

There is a skilled Foxboro Engineer near you. It is his job to help you with those process problems that Foxboro can solve. His recommendations may save you a great deal of money. Get in touch with him today at the nearest Foxboro Branch office.

INSTRUMENTS for CONTROLLING, RECORDING and INDICATING TEMPERATURE, HUMIDITY and PRESSURE

Set-up
Folding
Corrugated
Solid Fibre

BOARDS and BOXES

A department for interests allied with the pulp and paper industry

Board Mills and Paper Converters

Box Makers Plan 1930 Convention

Plans for the sixteenth annual convention of the Pacific Coast Paper Box Manufacturers' Association to be held at Victoria, B. C., June 23, 24 and 25, are well under way, and predictions are already being made that this year's attendance will exceed that of previous years. The following committees on arrangements were named last month by Rufus C. Holman, association vice-president:

GENERAL CONVENTION COMMITEE—Rufus C. Holman, Portland Paper Box Co., Portland, chairman; C. E. Daugherty, secretary of the Seattle Paper Box Makers' Association, convention secretary.

EXECUTIVE COMMITEE—Rufus C. Holman, chairman; Russell E. Barker, National Paper Box Co., Vancouver, B. C., active and vice chairman; J. L. Norie, Coast Carton Co., Seattle; James Scully, Puget Sound Paper Box Co., Seattle; Hugh Peat, general secretary of the coast association.

FINANCE COMMITTEE—Oscar Borgland, Union Paper Box Manufacturing Co., Seattle; J. O. Hinchor, Hinchor Paper Box Co., Seattle; George G. Guild, Columbia Paper Products Co., Portland.

PROGRAM COMMITTEE—Theodore Rothschild, F. C. Stettler Manufacturing Co., Portland, chairman; C. E. Daugherty, Hugh Peat, Walter Grigsby, Grigsby Brothers, Portland; C. A. Morgan, Stettler Manufacturing Co.

GOLF COMMITTEE—A. J. Schoephoestor, Union Paper Box Co., Seattle, chairman; F. L. Dielschneider, Oregon Paper Box Co., Portland; Walter Simpson, Simpson Paper Box Co., Portland.

ENTERTAINMENT COMMITTEE—Russell E. Barker, F. C. Stettler, Stettler Manufacturing Co., Payson Thompson, of the Portland Paper Box Co.; Fred Mattson, Union Paper Box Co.; L. Millbrandt, Pacific Paper Box Factory, Portland.

CALCUTTA POOL COMMITTEE—J. L. Norie, chairman.

INVITATION COMMITTEE—Myer C. Rubin, secretary Portland Box Makers Association, chairman; C. E. Daugherty, Hugh Peat, John B. Bonnell, Los Angeles Paper Box Manufacturers Association, F. V. Simpson, Sr., Simpson Paper Box Co.

RECEPTION & SOUVENIR COMMITTEE—F. C. Stettler, chairman; Russell E. Barker.

PRESS, HOTEL & TRANSPORTATION COMMITTEE—C. E. Daugherty, Russell E. Barker.

It is expected that Charles Ruble, Standard Paper Box Co., Los Angeles, will announce appointment of ladies auxiliary committees sometime this month, according to Mr. Holman. Howard P. Beckett of the National Paper Box Manufacturers Association has been asked to take a place on the program, it was said.

Paraffine Company Will Expand Stock

Paraffine Companies, Inc., was authorized by the California state corporation department last month to issue 9,325 shares common stock in accordance with the recently declared 2% stock dividend.

Bates In New Los Angeles Plant

Increase of western business of the Bates Valve Bag Co. will be accommodated by a new and enlarged plant recently completed at Los Angeles. The Austin Co. designed and constructed the building, which is 160 by 360 feet in size. The company formerly leased quarters adjoining the California-Oregon Paper Mills at Los Angeles.

Ridgway Lithograph Company Expands

The Ridgway Lithograph Co. of Seattle, color lithographers in the field of cartons and labels, are expanding their organization with the installation of another 54-inch Potter two-color high speed offset press, replacing an odd sized press of older design and adding another unit to the battery of uniform, modern, high-speed offsets. Other features in their expansion program are building alterations and plant improvements, with a view toward increased efficiency and the addition of an advertising department.

Harold Ridgway, who has been in Europe for the past year, has become affiliated with the lithographing industry, starting in the plant to learn the business. During his tour of Europe he made an extensive survey of lithography and studied in Germany and England certain scientific processes and discoveries with the intention of adapting these in the plant.

The Ridgway plant has shown a consistent growth since its beginning some seven years ago. The present changes show their faith in the future of the Coast. The management attributes their rapid development to prompt service, high quality and reasonable prices.

Parchment Paper For Sausage Casing

Sausage casings made from genuine vegetable parchment are being used in Germany to a considerable extent, according to a recent report from Commercial Attache Lund, Oslo. The paper used is of excellent quality, in different weights according to the width of the casing, and is furnished in white and colors.

Fibreboard Mill Again Operating

Returning dozens of men to jobs, the Port Angeles, Wash., mill of Fibreboard Products Inc. mill started full production operations again after the New Year. Thus was ended a two-weeks period of curtailment of work, during which the mill produced only about 50% of its normal capacity. The annual December slump in orders caused the slowing down of activity, dealers allowing their stocks of wallboard and similar products to become depleted for the new year's inventory.

PRODUCTION OF BOXBOARD

October, 1929
Unit—Short Tons
Based on Reports to the U. S. Department of Commerce

	Production	Per Cent of Capacity	New Orders	Unfilled Orders End of Month	Stocks End of Month
1929—					
October	264,631	82.9	264,338	87,304	59,244
September	*235,962	*83.2	*247,329	85,600	*58,709
First 10 months	2,488,724	81.9	2,467,169		
1928—					
October	244,894	81.9	241,491	81,022	43,627
First 10 months	2,236,975	79.2	2,250,852		

*Revised.

(Turn to page 60)

Typical Logging Scene on Lands Owned by the

PUGET SOUND PULP & TIMBER CO.

EVERETT, WASHINGTON

From our own Timber (Amabilis Fir, Spruce and Western Hemlock) We Manufacture

High Grade SULPHITE PULP

FOR DOMESTIC *and* EXPORT SHIPMENTS

Boards and Boxes

(Continued from page 58)

Consolidated Box Output Heavy

Heavy production for the Christmas trade caused the Consolidated Paper Box Co. of San Francisco to maintain an eighteen-hour-a-day schedule at its plants, Edgar L. Stern, vice-president and general manager, announced.

While production slackened at the time of the market break orders have been received at a higher rate than for the same 1928 period and production for the entire year is expected by company officials to exceed that of last year.

Consolidation of Boxboard Products, Inc., and Gilman Petterson Co. with the Consolidated Paper, effected in September, will add $500,000 annually to the concern's folding box business, Mr. Stern predicted.

Previously the percentage of folding to set-up boxes was about 10-90. The present proportion is 30% folding boxes.

Outlook Favorable For New Paper Product

Cardboard like tin—waterproof and airtight. Such is Paratite, a new product of the Consolidated Paper Box Co., of San Francisco. Paratite is boxboard which has been treated with hot wax at high pressure, making it stiff enough so that it may be used as a tin substitute. Despite the wax treatment, however, Paratite offers a good surface for printing and gluing. At the present time Consolidated Paper Box is negotiating with an Eastern firm for the manufacture of Paratite in that territory.

Regarding the outlook for 1930 R. J. Gruenberg, head of research and sales development departments, was optimistic.

"A great deal will depend on the development of new business," said Mr. Gruenberg: "Here at Consolidated Paper Box we have a large potential output, and we are looking forward to an excellent year."

Consolidated Paper Box is sending to its customers and prospects something different in the way of an advertising folder this year. On the outside an executive, presumably, is pictured looking through a window made of cellophane at the factories of Consolidated Paper Box which are printed on the inside. When the folder is opened an advertising message is brought to view.

Handy Golf Tees Are Made of Paper

A novel new advertising medium for a national concern wishing to keep its name before golfers, is a paper golf tee now being perfected by a Portland inventor who has given it the name Adjustee. The cost of production is extremely low, and, it is said to have the great advantage of not clogging the lawn mower.

Pacific Strawboard Making Own Groundwood

The Pacific Straw Paper & Board Co. at Longview is this month beginning production of groundwood pulp for its own requirements, having installed an electrically driven grinder. Wood is brought in on barges on the Cowlitz River and unloaded direct to the grinder room on chain conveyor. A new addition to the mill buildings has been completed to house the groundwood department.

The company has been operating at good capacity, producing several grades of board. It has a daily capacity of about 40 tons.

ELSEWHERE

American Paper & Pulp Association Meeting Hotel Pennsylvania, New York February 17 to 20, 1930

For the first time in three decades the annual meeting of the American Paper and Pulp Association; the N. P. T. A. and affiliated associations and sections will be held in a different hotel. The Waldorf-Astoria is now a memory. As a result of a careful survey of hotel facilities in New York, the Pennsylvania Hotel has been chosen for this year's meetings. They will be held February 17-20, 1930.

Plans are under way to make this year's business meeting of the A. P. & P. A. an outstanding one. Matters of vital interest to the industry will be frankly and thoroughly discussed. The annual banquet is being planned with care; this year's effort will surely measure up with that of the past.

Jesse H. Neal, general manager, suggests that as the New York hotels are particularly busy in February, it is a good plan to make reservations as early as possible.

D. C. Everest Reelected

D. C. Everest, former president of the American Paper & Pulp Association, was reelected vice-president and general manager of the Marathon Paper Mills Co. of Rothschild, Wis., at the annual meeting of the company held in December.

* * *

Two Maine paper mills are planning a merger. They are the Eastern Manufacturing Co. and the Orono Pulp and Paper Co.

* * *

The Fort Edward, N. Y., mill of the International Paper Co., which two years ago converted from news print to bond papers, has reconverted two machines to news print. Another I. P. mill, now idle, near Glens Falls, N. Y., is being overhauled for news print manufacture.

* * *

Northern States Power Co. has acquired dam, power plant and flowage rights of Cornell Wood Products Co., Appleton, Wisc., but latter will continue manufacturing wallboard under same management.

B. C. Jobbers In Conference

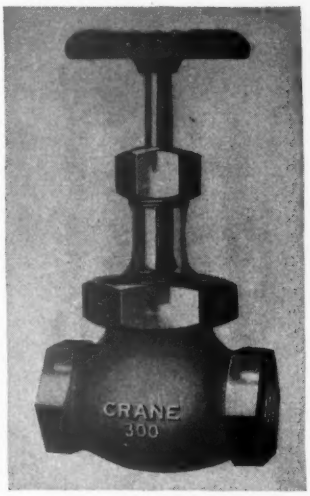
About 20 salesmen of the staff of Smith, Davidson & Wright, paper dealers of Vancouver, B. C., attended the annual conference at the head office early in January and discussed policies and plans for the year.

According to Francis Wright, secretary-treasurer of the company, there is normal demand on the prairies and business is expected to show improvement as the year progresses. The company's recognized field extends as far east as Winnipeg, but the price of paper has so far prevented it from entering the export field.

Market conditions on the Canadian prairies are always dependent upon the crop, and the outlook is somewhat obscured by the fact that an unusually light harvest was gathered last season. Prices, however, were high and it is felt that there will be about the same amount of money in circulation as in past years.

1855 • SEVENTY-FIFTH ANNIVERSARY • 1930

From handwheel to disc, this valve promises years of service



No. 380 E Brass union bonnet globe valve

The special Cranite disc with which the No. 380 E globe and 381 E angle brass union bonnet valves are equipped makes them unusually efficient in controlling steam working pressures up to 300 pounds at 500 degrees, as well as air, gas, oil, and water. For this disc, made in standard dimensions, is of special asbestos composition. Years of experiment and service have proved it capable of keeping the valve tight under the most rigorous conditions.

Equal care has been shown in choosing materials for other parts of these valves. The bodies and bonnets are of brass; the union bonnet rings and packing nuts are of forged brass; the stems are rolled bronze; seats of Crane nickel alloy; the handwheels, malleable iron.

Heavily built and correctly proportioned, these valves promise years of service under the most arduous conditions . . . and live up to them! Complete information is given in circular No. 220; write for it.

Valves CRANE *Fittings*

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET
Branches and Sales Offices in One Hundred and Ninety Cities

When writing to CRANE CO., *please mention* PACIFIC PULP AND PAPER INDUSTRY.

New Types
New Models
New Machines

EQUIPMENT

Manufacturers of, and dealers in, equipment used by pulp and paper mills, board manufacturers, converting plants, paper merchants, or any other branch of the industry may make their announcements in this department.

New Dealers
New Branches
Appointments

Beating and Hydration

The Vertical Hydrator Co., Chicago, which recently has sponsored the Fritz Vertical Hydrator in the field of paper mill equipment, has issued a most interesting copyrighted booklet by Paul Hodgdon entitled "Beating and Hydration." In his introduction the author remarks:

For several years the writer has studied the different angles of the beating process and has always found it interesting to talk to different technical men and practical paper makers in connection with this subject. From experience, he finds a very wide interpretation of some of the terms used when speaking of beating and, in some cases, there seems to be a great deal of mystery connected with it.

The purpose of this article is to explain in part, at least, some of these mysteries and misunderstandings. For example: we find that the technical man, when talking of hydration, means one thing, and the pratcical man means another, so it is planned to discuss beating from a pratcical man's viewpoint, resorting to the theory side of beating only in order that the different interpretations of certain terms may be reconciled.

The following will give us a clearer understanding of the changes that take place in beating so that they may be accomplished with less waste of energy and money.

P&H Announces Seven New Models

Harnischfeger Corporation of Milwaukee, Wisconsin, has announced the addition of seven new models to its line of excavators. With these new machines there is now a size to meet every requirement, from ½ to 3½ cubic yards capacity. On the new P&H's will be found a number of valuable improvements, which were adopted only after months of actual field tests.

S. K. F. Roller Bearings For Ore Cars

The Swedish Government Railways have equipped 4,000 ore trucks with S. K. F. roller bearings for service beyond the Arctic circle. The S. K. F. concern also is negotiating with certain American railroad companies for equipping their rolling stock with bearings of the same type.

New Commercial Lighting Catalog

"Westinghouse Commercial Lighting" is the title of catalog 219-B, which has just been released by the Westinghouse Electric & Manufacturing Co., South Bend, Indiana. Lighting equipment suitable for commercial interiors of any type is described and illustrated in this 28-page booklet. Copies can be procured from any Westinghouse district office.

The Merritt Board Dryer

Technical Economist Corp. of New York has issued a new folder on the Merritt Board Dryer for producing wall or insulating board. The dryer combines the three essentials of heat applications and ventilation. It incorporates the hot plate theory, and lift jacks give the plates their "breathing movement."

In New Offices

Fibreboard Products, Inc. have transferred their Seattle offices from 636 to 561 Skinner Building.

New Bristol Catalog

The Bristol Company's (Waterbury, Conn.) new Catalog No. 1009, Bristol's Recording Pressure and Vacuum Gauges, gives very complete and up-to-date information on this particular division of the recording instrument line.

Griffith Rubber Mills Enlarging Service

The Griffith Rubber Mills of Portland, rubber covered roll manufacturers and makers of mechanical rubber goods, are installing a new 38-foot lathe enough to handle 256-inch rolls, the largest now in operation on the Pacific Coast. They now have four lathes of about this dimension.

An addition is also being added to the plant to house two 14-foot rubber presses for the manufacture of all sizes and lengths of hard rubber doctor blades, which have during the past year been put to use in every paper mill in the Northwest including British Columbia, the Griffith company states.

Carthage Machine Sell Canadian Interests

The Carthage Machine Co. have sold their interests in the Carthage Machine Co. of Canada, Ltd., Belleville, Ontario, to R. J. Graham of Belleville. A. K. Hinds has also sold his interest and resigned as president and director of the Canadian company.

Great Western Clears Funded Debt

Directors of Great Western Electro-Chemical Co. have passed a resolution calling for redemption on April 1, 1930, the next interest payment date, of the remaining $34,000 outstanding bonds of an issue of $1,000,000 authorized in 1919. Retirement of these bonds clears the entire funded debt of the company.

Into the New Office at Everett

Just as the new year was ushered in, the office staff of the Puget Sound Pulp & Timber Co. at Everett, Wash., began moving desks around and moved into the new administrative building which had just been completed on the site where the new 150-ton high grade bleached sulphite mill is building. The office building is two stories high, colonial style, finished in brick.

The mill itself is rapidly taking shape. Steel for the digester house is all in place. Fabrication of the digesters has started. Bleach tank and stock chest foundations are all in. Much of the steel work of the plant is up. Machinery is beginning to arrive. The company hopes to have the plant in production this summer.

Zellerbach's Spokane Branch Moves

Burned out some months ago the Spokane branch of the Zellerbach Paper Co. moved into temporary quarters to await the rebuilding of the old home at W510 Railroad Ave. Last month Manager Fred Stockwell sent invitations to the trade to come and see them at the old stand after January 2.

How many men do you HAVE to see when you buy insulation?

. . . . ONLY ONE!

WHEN you are busy and the important problem of purchasing insulation comes before you it saves time to talk to one man who is prepared to discuss intelligently *every* form of insulation to meet every need.

When a J-M sales engineer calls on you he is fully prepared and thoroughly equipped to assist you in any problem which may confront you on insulation. He represents an organization which for seventy years has been the leading authority on industrial insulations. He can offer you insulation in any form and combination whether it be block, brick, plaster or filler to meet your insulation needs and to cover every temperature range from the lowest to the highest. He has no particular type of insulation to push in preference to any other. His one idea is to give you an insulation job that will prove the most satisfactory and that will save the most money for you.

The J-M representative has available for your use facts, figures and vitally important data that seldom get into print. He brings to your particular problems an engineering experience and understanding that should be helpful to you. And if your insulation needs are special or unusual his assistance in putting your problems clearly before our engineering department is well worth the time you give him.

1-132-1

Johns-Manville
INDUSTRIAL INSULATIONS

INCLUDING SUPEREX, SIL-O-CEL, 85% MAGNESIA, SPONGE FELT, ROCK CORK
For all temperatures from 400°F. below zero to the highest industrial temperatures

Address JOHNS-MANVILLE
(*At nearest office listed below*)
New York, Chicago, Cleveland, San Francisco, Toronto
(*Offices in all large cities*)

Please have a J-M representative call to discuss Insulation in our plant.

*Name*_____

*Address*_____

S·A·F·E·T·Y FIRST—LAST and ALWAYS

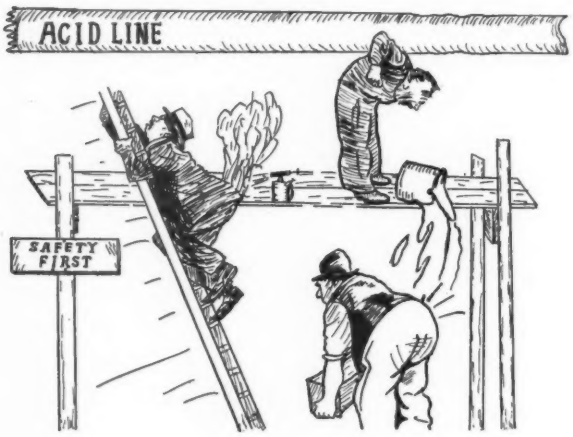
The Best Safety Device Known Is a Careful Man

THE ACID TEST OF SAFETY FIRST

By S. H. COOKE

A good formula:—H_2SO_4=Two parts Horse-sense+Safety First+four parts undiluted Obeisance to the penalty of foolhardiness.

Fred Barton meets up with one of those troublesome mornings not entirely outside the scope of a chemist. Dilute pulp test tubes stand with samples brought in "tomorrow and wanted yesterday"; a while-you-wait report test on a newly arrived cargo of sulphur is requested; the tensile machine heaped with grief samples from the rolls of No. 1 and No. 4. He groaned as the mill foreman dashed into the lab, closely followed by Pete, the lead burner, nursing a roll of blue prints to do with the new acid pump lines.



"Why change this main acid line when we're renewing all steam and pulp delivery piping?" growled the foreman. "Why drill 10-inch holes through 14-inch concrete wall for small 3-inch acid pipes . . ."

"As a SAFETY FIRST precaution. Imagine a main acid delivery line passing through a steam plant," interrupted the chemist. "Then, again, we require air space around lead pipe feeders because flowing acid in a lead conduit making contact with concrete sets up disintegration . . ."

"Yeah? Wal fer onct I'm agreein' with thet SAFETY FIRST inspector," offered the lead burner. "Idea of 10-inch acid pipe, carried on a wooden cradle, mark you, passing 'longside darn near red hot smoke conveyor from boilers. We gotta be careful . . ." as, all excited, he dropped a 6-inch acid resisting bronze valve on the Williams testing table and a beating tester with its graduated beaker fell to the floor with a crash!

"Careful? What an illogical demonstration!" moaned Fred. "SAFETY FIRST is as applicable to the lab as in mechanics. Why ruin my workshop? Supposing that had been dynamite . . ."

"Supposin' your aunt had been a he she'd a been your uncle," flashed the foreman. "You birds are full of grief. That acid pipe has been there for years an' nothing is goin' to happen for a day or . . ."

TOOT! TOOT! TOOT! TOOT! the raucus note of the mill whistle broke in with the general breakdown call!

Before its echo had died away the SAFETY FIRST inspector dashed into the lab. "S'matter?" he gasped. "Wooden cradle carrying acid line in steam plant is afire. Pipe is fusing. Don't need lots of help but we need it in a hurry!"

The trio dashed to the power house, where a harrassed chief pointed toward an acid line that threatened to spray his battery of 16 watertube boilers with sulphuric acid.

"Cut-off valve closed?" he thundered to the super. "Hell! That valve is 20 feet this side of tank outlet. That partially filled section over first two boilers is filled with acid. Sags any more it's going to fracture, that's a cinch. It goes, then your acid supply is cut off from digesters. What a jackpot."

Working aloft, one hour on and two off, the SAFETY FIRST millwright squad sweltered in the terrific heat generated by the smoke conveyor as they bolt girders

(Turn to page 66)

STATEMENT OF ACCIDENT EXPERIENCE—NOVEMBER, 1929

Mills in State of Washington

COMPANY—	Hours Worked	Total Accidents	Frequency Rate	Days Lost	Severity Rate	Standing
Crown Willamette Paper Co., Camas	290,982	3	10.3	129	.443	1
Everett Pulp & Paper Co.	85,680	1	11.6	1,380	16.106	2
Inland Empire Paper Co.	61,574	1	16.2	44	.715	3
Fibreboard Products Inc., Port Angeles	45,208	1	22.1	18	.398	4
Grays Harbor Pulp & Paper Co.	85,769	2	23.3	10	.117	5
Cascade Paper Co.	50,656	2	39.5	45	.888	6
Washington Pulp & Paper Corp.	92,598	4	43.2	72	.775	7
National Paper Products Co.	85,441	5	58.5	82	.960	8
Longview Fibre Co.	79,616	6	75.4	69	.867	9
Puget Sound Pulp & Timber Co., Fidalgo Division	25,376	2	78.8	10	.394	10
Fibreboard Products Inc., Sumner	22,612	2	88.4	11	.486	11
Puget Sound Pulp & Timber Co., San Juan Division	29,552	4	135.4	23	.779	12
Rainier Pulp & Paper Co.	65,372	9	137.4	96	1.468	13
Tumwater Paper Mills	21,281	4	188.0	18	.846	14
Pacific Straw Paper & Board Co.	17,768	5	218.4	90	5.065	15

The Following Mills Not Reporting: Columbia River Paper Co., Pacific Coast Paper Mills.

TEN YEARS OF PROGRESS

1920 *FAST'S PRINCIPLE OF MECHANICAL FLEXIBILITY* 1930

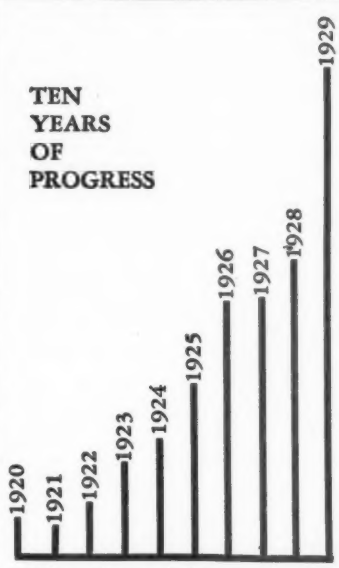
THROUGH the development of Fast's Principle of Mechanical Flexibility shaft coupling practice has been revolutionized. These words are used advisedly.

The direct connecting of driving and driven shafts was a product of high speeds, the steam turbine and the electric motor. But direct connecting was not practical until some method was devised to compensate for misalignment and thus protect shaft bearings.

Crude jaw-type couplings were devised and later couplings using flexible members to compensate for shaft misalignment. But the bending or alternate compression and release of the flexible members frequently meant fatigue and ultimate failure. The inevitable result was that shaft couplings, as a class, became natural members of the large family of replacement parts.

To make shaft couplings as dependable as the connected machines, it was necessary to sweep aside former practice. Starting with the premise that the weakness of then current coupling design—flexible materials—must be done away with, the result was the new Fast's Principle of Mechanical Flexibility.

Within the short span of ten years this principle has revolutionized coupling practice. For the first time it became practical to permanently connect misaligned shafts with a mechanically correct coupling, free from all danger of failure of flexible parts. Shut-downs for coupling repairs and replacements became a thing of the past.

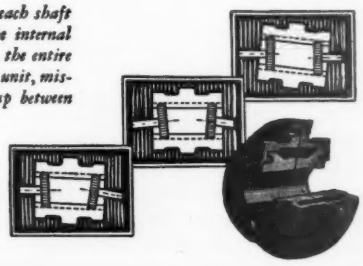


Starting new in 1920, sales have mounted steadily and rapidly, as industry has discovered that these couplings solve coupling problems and last as long as the connected machines.

FAST'S COUPLING
SELF ALIGNING

The remarkable sales growth of Fast's coupling is the best tribute to this new and better principle. Today Fast's Couplings are solving coupling problems throughout industry, because they have demonstrated their ability to compensate for misalignment, protect drives and, when lubricated, last as long as the connected machines. If you are not familiar with the Mechanical Flexibility, sign the coupon and get full information.

Two spur gears, one on each shaft end, mesh in oil with the internal gears of a floating sleeve, the entire assembly revolving as one unit, misalignment being taken up between the gear faces.



GET NEW 10th ANNIVERSARY CATALOG

THE BARTLETT HAYWARD CO.
228 Scott St., Baltimore, Md.

Without obligation, please send me a free copy of the new bound edition of the 10th Anniversary Catalog of Fast's Couplings, as soon as it is off press.

NAME.....
FIRM NAME.....
ADDRESS.....
CITY AND STATE .....

Safety First

(Continued from page 64)

across to boiler buckstaves to carry steel cradles for the pipe line.

"Anything you want, Bill?" came the anxious query from the super. "Just say the word."

"Yup," murmured the foreman, "lead and beer." He mopped beads of perspiration from his brow.

"Thet's right," bellowed Pete whilst reinforcing weak spots with molten metal, "let's have the last first by all means!"

Tension allayed, at the break of dawn the inspector registered a protest. "Charring of those wooden cradles was reported a year ago. We've been forcing the boilers and the temperature of smoke conveyors passed the margin of safety. Successful administration of SAFETY FIRST in a mill hinges upon the cardinal principle of taking immediate action on reports . . ."

"Just so and we shall have reached the apex of civilization when the human race develop the power to enable them to offset calamities by aforesight," suggested the chemist. "Until then, SAFETY FIRST is the next best thing for human society, for it has both economic and humane values. Last year 53 accidents due to acids and caustics were reported, compensated paid totaled $4.385; 455 scalds and burns cost $30,366.79. SAFETY FIRST has both economic and humane values. Give it the acid test . . ."

"It affords me great pleasure to second the motion," interjected the mill superintendent, ascending the ladder just as Pete kicked back a blow-torch, causing havoc as the flame made contact. In the excitement the ladder slipped, which also explains how Pete overturned the receptacle used to catch the acid seepage as he reassures Ollie Yonson, working down below, "Huh! That ain't lead! It's jist acid!"

"Yah? I got some compensations here py yimminy," offered the offended party ruefully as he rubbed the extremity of his anatomy. "'Taint lead? Vell, she feels yust as goot to me!"

U. S. Pulp and Paper Production
October, 1929

According to identical mill reports to the American Paper & Pulp Association from members and cooperating organizations, paper production in October registered an increase of 12% as compared with September 1929, and an increase of 7% over October 1928. Paper production for ten months ending October 1929, showed an increase of 7% over the same period of 1928.

The October production for all individual grades, excepting newsprint, felts and building, bag and wrapping papers, registered an increase over October 1928 output. Uncoated book paper production showed an increase of 20% over October 1928, writing 13%, hanging 11%, tissue 10% and paperboard 9%. Production of wrapping paper decreased in October 1929 as compared with October 1928, by 10%, bag paper 5%, felts and building paper 2% and newsprint less than 1%.

Shipments of all grades in October 1929, excepting felts and building, bags and wrapping papers, increased over October 1928, the total shipments being 7% above the total of last year.

Paperboard, wrapping, bag, tissue and hanging papers, registered decreases in inventory at the end of October 1929 as compared with September 1929. As compared with October 1928, paperboard, felts and building and hanging papers, showed increases in inventory. The total stocks on hand for all grades was 2% below September 1929, and 2% below that of October 1928.

During October 1929, 8% more bleached sulphite pulp, 8% more soda pulp and 3% more kraft pulp was consumed by reporting mills than in October 1928. The total shipments to outside markets of all grades of pulp in October 1929 were 9% higher than the total for October 1928.

All grades of pulp, excepting news grade sulphite, bleached sulphite and mitscherlich sulphite, showed decreases in inventory at the end of October as compared with the end of September 1929. As compared with October 1928, all grades excepting bleached sulphite, easy bleaching sulphite, and kraft pulp, registered decreases in inventory.

REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF OCTOBER, 1929

GRADE	Production Tons	Shipments Tons	Stocks on Hand End of Month—Tons
Newsprint	122,009	122,040	26,573
Book (Uncoated)	101,293	100,387	40,649
Paperboard	238,738	242,310	59,815
Wrapping	50,774	53,362	47,075
Bag	15,977	15,977	5,053
Writing	33,464	32,687	39,064
Tissue	14,693	14,997	7,500
Hanging	6,991	7,691	4,636
Felts and Building	6,360	6,287	2,762
Other Grades	29,598	29,405	16,572
Total—All Grades	619,897	625,143	249,699

REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF OCTOBER, 1929

GRADE	Production Tons	Used During Month—Tons	Shipped During month—Tons	Stocks on Hand End of Month—Tons
Groundwood	79,900	91,761	3,529	57,695
Sulphite News Grade	42,077	37,221	4,612	6,422
Sulphite Bleached	28,813	25,922	2,702	3,068
Sulphite Easy Bleaching	3,213	2,936	328	776
Sulphite Mitscherlich	7,618	5,898	1,447	956
Sulphate Pulp	31,167	26,999	4,596	5,589
Soda Pulp	25,443	16,753	9,142	3,928
Pulp—Other Grades	62	------	34	130
Total—All Grades	218,293	207,490	26,390	78,564

Files For Pulp Project in B. C.

Application in behalf of United States pulp and paper interests whose name he refused to divulge was made for water power on Pend Oreille River recently by Neil H. McDiarmid, Vancouver, B. C., lawyer.

Mr. McDiarmid filed his petition with the provincial water board when it heard other bids on January 6 in Victoria and he asked for 60 days' delay pending preparation of plans for a pulp and paper mill. Other applicants were the West Kootenay Power & Light Co., and Reeves McDonald Co., the former being desirous of building an $18,000,000 power plant there to supply various mining enterprises and the latter contemplating a $2,000,000 zinc reduction plant.

Decision was reserved pending completion of preliminary plans for water development by the West Kootenay company.

IMPORTS OF PULP WOOD AND WOOD PULP INTO THE UNITED STATES BY COUNTRIES

OCTOBER, 1929

Compiled by the U. S. Department of Commerce Bureau of Foreign and Domestic Commerce
(Figures Subject to Revision.)

PULP WOOD

	Rough				Peeled				Rossed			
	Spruce		Other		Spruce		Other		Spruce		Other	
	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars
COUNTRIES												
Canada	17,012	179,085	1,772	17,808	54,883	650,478	7,032	65,660	2,062	22,790	.....	.....

Total Pulp Wood Imports for October, 1929—82,761 Cords; $1,035,821.

WOOD PULP

	Mechanically Ground		Chemical Unbleached Sulphite		Chemical Bleached Sulphite		Chemical Unbleached Sulphate		Chemical Bleached Sulphate		All Other Wood Pulp	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
COUNTRIES—												
Azores & Madeira Is.	.....	.....	.....	.....	50	3,827	.....	.....	.....	.....	.....	.....
Czechoslovakia	.....	.....	199	8,836	125	8,809	.....	.....	.....	.....	.....	.....
Estonia	.....	.....	643	30,659	.....	.....	.....	.....	.....	.....	.....	.....
Finland	568	12,244	4,656	219,452	.....	.....	802	33,292	194	11,829	.....	.....
France	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85	24,971
Germany	.....	.....	1,356	74,941	4,089	310,246	.....	.....	.....	.....	.....	.....
Lithuania	.....	.....	772	40,174	.....	.....	.....	.....	.....	.....	.....	.....
Norway	400	5,288	1,398	76,121	3,695	285,494	2,508	126,223	25	1,907	.....	.....
Poland and Danzig	.....	.....	.....	.....	.....	.....	521	23,255	.....	.....	.....	.....
Sweden	616	16,142	33,602	1,751,666	2,990	228,531	25,628	1,302,043	.....	.....	.....	.....
Canada	22,541	550,983	18,958	918,067	17,232	1,310,614	9,353	569,946	990	90,888	325	22,493
Netherlands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52	3,887
Total	24,125	584,657	61,584	3,119,916	28,181	2,147,521	38,812	2,054,759	1,209	104,624	462	51,391

Total Imports of All Grades of Pulp for October, 1929—154,373 Tons; $8,062,828.

PACIFIC COAST PULP IMPORTS—SEPTEMBER, 1929

	Paper* Base Stocks	Pulpwood		Mechanically Ground Pulp		Bleached Sulphite		Unbleached Sulphite		Unbleached Sulphate	
	Dollars	Dollars	Cords	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons
To LOS ANGELES—											
From Belgium	10,452	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Japan	6,834	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Sweden	.....	.....	.....	.....	.....	.....	.....	20,911	500	.....	.....
To SAN FRANCISCO—											
From Sweden	.....	.....	.....	.....	.....	.....	.....	44,049	800	.....	.....
From Canada	2,988	.....	.....	.....	.....	.....	.....	1,827	66	914	58
From Japan	58,871	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Australia	760	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
To OREGON—											
From Sweden	.....	.....	.....	.....	.....	3,866	50	.....	.....	.....	.....
From Japan	117	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
To WASHINGTON—											
From Canada	4,247	.....	.....	.....	.....	8,626	136	7,159	90	.....	.....
Pacific Coast Total	84,269	.....	.....	.....	.....	12,492	186	73,946	1,456	914	58

Total Pulp Imports—September, 1929—$87,352; 1,700 Tons.

*Includes rags, waste paper, bagging and "other waste for paper making."

SHIPMENTS OF OVERISSUE NEWSPAPER

From Pacific Coast Customs District—September, 1929

Country of Destination—	Pounds	Dollars
From Los Angeles		
China	9,827,260	31,970
Java	336,560	3,384
Netherlands	224,000	2,072
Orient	2,800	28
Philippines	781,960	8,221
Total	11,172,580	45,675
From San Francisco		
Central America	101,000	608
Orient	460,040	4,571
Netherlands	26,160	726
China	560,000	5,460
Japan	199,920	1,988
Total	1,347,120	13,353
From Oregon		
China	280,000	2,660
Total	280,000	2,660
Total Coast Shipment	12,799,700	61,688

Harold L. Zellerbach, president of the Zellerbach Paper of San Francisco, spent a few days in Los Angeles in December.

Tacoma Plans $8,000,000 Power Project

Plans for $8,375,000 power development by the city of Tacoma were revealed in filings made with the state hydraulics office last month. The petitions ask permission to tap Packwood Lake, Lewis County, and the upper waters of the Cowlitz River.

One filing asks diversion of 125 cubic second feet of water from the Clear Fork of the Cowlitz River, which it is planned to convey to Packwood Lake as a reservoir by means of a tunnel 10 by 12 feet and five and four-tenths miles long, costing $1,500,000., A diversion dam 30 feet high and 150 feet long at the top will be required in this part of the project.

Another application asks use of Packwood Lake as a reservoir for impounding 65,000 acre feet by means of a dam 105 feet high and 600 feet long on top, the reservoir to cost $755,700.

A third application covers diversion of 250 second feet from Lake Creek. In conveying the water to the power plant 16,000 feet of tunnel and 6,000 feet of pipe will be required. The cost of this development is placed at $6,120,000.

In Other Words, Business As Usual

The late and well known stock market debacle apparently hasn't hurt real business a bit. Paper purchases are considered a fair indication of general prosperity, but a check up of Portland paper jobbers, for example, could find no evidence of disturbance. "Of course, there is a possibility that the luxury volume is suffering," observed W. D. McWaters, manager of the Zellerbach Paper Co. "Business with the local house has remained unaffected, however."

"You can boil my answer down to 'Absolutely not'," declared O. W. Mielke, president of Blake, Moffitt & Towne. "So far as our business is concerned we wouldn't even know that the public's general purchasing power had been affected."

"Our business in Portland hasn't suffered," stated James W. Murphy, local manager for Carter, Rice & Co. "In fact, I believe the stock market slump is going to help us. I find everybody working harder than before; what is more to the point, I have less trouble contacting buyers. Before the tumble occurred, buyers were either 'out' or 'busy.' Now they are not only in," but they also have time to see me. I've been landing orders from men whom I hadn't sold for months."

"That money wasn't lost; it just changed hands," remarked J. W. P. McFall, veteran paper merchant. "The money is still in the country and folks have no reason for getting excited. I don't know that the slump had anything to do with it, but our business is a shade better than it was a year ago."

"Our present business compares favorably with our volume at this time last year," asserted A. Osmund, of Osmund & Co.. Paper isn't a luxury. Which is another way of saying that Portlanders are still buying necessities."

C. M. Packer, head of Packer-Scott Co., said, "We didn't even notice it, nor would we have known about it if we hadn't read about it in the papers."

Business Is Good

To ascertain facts regarding 1930 advertising appropriations the Association of National Advertisers made a survey and received 257 replies out of a membership of 291. Of these—

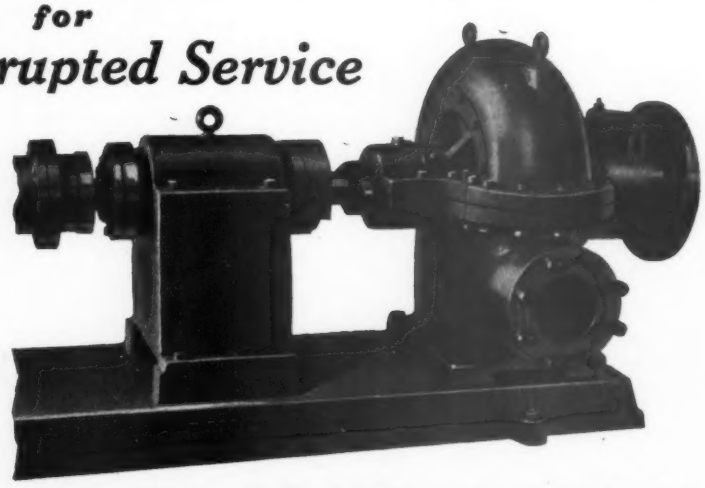
85 reported same appropriation for 1930 as for 1929
136 reported increases of from 5% to 300% in 1930 appropriations
19 reported decreases in 1930 appropriations from 2% to 37½%
17 reported appropriations not yet decided, but only a few attributed hesitancy to business conditions.

The 240 national advertisers which had definitely made up the 1930 budgets spent in 1929—$186,000,000. These same companies have made gross appropriations of $206,000,000 for 1930, an increase of $20,000,000, or about 11%.

This vast mass appropriation for advertising will cover newspapers, magazines, trade papers, farm papers, catalogs, printed matter and direct mail. The concerns reporting include all forms of business in all parts of the country. They are the leaders, the bellwethers, and their advertising policy may be taken as a fair index of advertising trend outside of their membership as well as within.

The total number of pages in newspapers and all kinds of periodicals bears a close and almost constant ratio to the advertising volume. It looks like a healthy report for the paper manufacturers.

A BINGHAM
SULPHATE LIQUOR PUMP
for
Uninterrupted Service



Pacific Coast Made

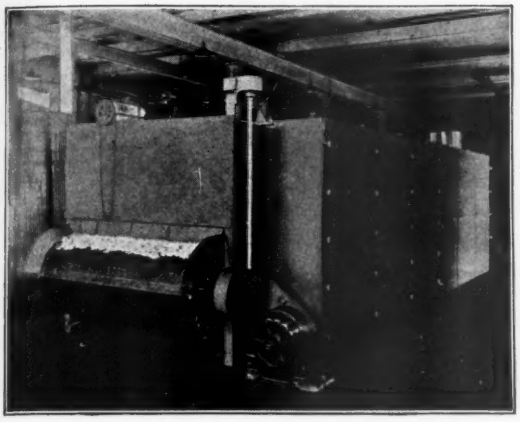
BINGHAM PUMP COMPANY
GENERAL OFFICE *and* FACTORY: EAST MADISON *at* SEVENTH
PORTLAND, OREGON
Paper Stock Pumps—White Water Pumps—Sulphite Acid Pumps — Sulphate Liquor Pumps

FIDALGO DRYING SYSTEMS

(PATENTS GRANTED AND PENDING ALL COUNTRIES)

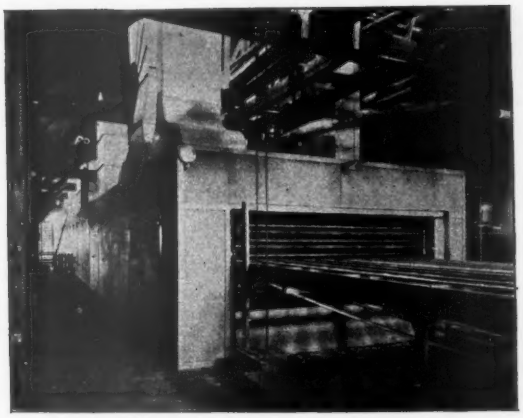
Investigate Our Installations

For PULP DRYING



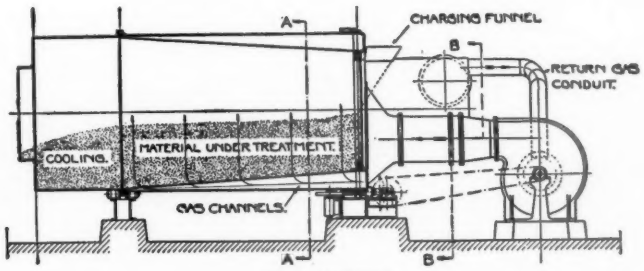
Shredded Pulp Dried With Same Strength as Wet

For INSULATING BOARD

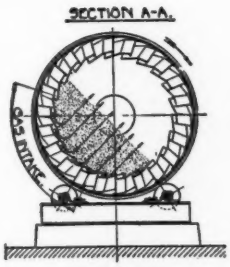


Type M Dryer—For Uniform Surface Board—High Speed Maximum Efficiency

. . . for Bark and Chips



ELEVATION



SECTION

The New "PHERSON" Rotary Dryer

Higher Efficiency—Smaller Units—Lower Costs

TECHNICAL ECONOMIST CORPORATION

122 East 42nd Street NEW YORK, N. Y.

PACIFIC COAST PAPER EXPORTS—OCTOBER, 1929

	Newsprint		Printing		Writing		Greaseproof		Wrapping		Tissues	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
From LOS ANGELES—												
To Mexico	———	———	———	———	995	197	———	———	9,658	1,107	4,029	437
To Japan	———	———	———	———	———	———	———	———	4,218	275	———	———
To Australia	———	———	———	———	———	———	———	———	12,460	900	———	———
To Central America	———	———	———	———	112	42	———	———	———	———	208	29
From SAN FRANCISCO—												
To Mexico	129,191	4,787	———	———	141	65	300	51	39,200	2,629	706	49
To Central America	197,966	7,346	———	———	192,154	9,597	———	———	85,024	5,042	4,900	985
To Venezuela	16,990	520	———	———	22,912	1,437	———	———	———	———	———	———
To China	6,992	327	———	———	403	170	702	94	37,258	1,630	4,470	432
To Orient	170	14	2,868	224	———	———	2,244	259	3,078	179	1,624	155
To South America	———	———	459	64	———	———	5,027	641	25,861	1,585	1,039	168
To Canada	———	———	———	———	321	111	———	———	41,023	1,867	52	35
To Japan	———	———	———	———	18	8	———	———	———	———	150	51
To Philippines	———	———	———	———	6,332	958	120	14	———	———	20,520	1,956
To Australia	———	———	———	———	———	———	47	20	3,330	190	6,678	388
From OREGON—												
To Europe	12,971	492	———	———	———	———	———	———	———	———	———	———
To Peru	14,470	933	———	———	———	———	———	———	———	———	———	———
To China	284,514	10,215	———	———	———	———	———	———	———	———	———	———
To Philippines	347,778	12,081	———	———	92,416	4,638	———	———	51,885	2,611	———	———
To Australia	86,659	5,190	———	———	176,985	8,631	———	———	750	35	5,861	153
To Brazil	———	———	———	———	47,965	2,435	———	———	———	———	———	———
To Japan	———	———	———	———	8,487	488	———	———	———	———	———	———
To South America	———	———	———	———	———	———	———	———	5,054	276	———	———
From WASHINGTON—												
To Canada	71,112	2,262	5,258	1,039	4,612	997	18,541	2,238	126,813	5,336	20,928	1,763
To South America	2,222,000	66,660	———	———	———	———	———	———	———	———	———	———
To Philippines	224,513	6,426	———	———	———	———	———	———	———	———	———	———
To Europe	———	———	———	———	217	67	———	———	———	———	———	———
To China	———	———	———	———	641	182	5,370	685	———	———	1,660	156
To Japan	———	———	———	———	148	34	50	8	———	———	14,537	1,117
To Philippines	———	———	———	———	13,372	782	5,493	869	53,341	2,014	———	———
Pacific Coast Total	3,615,326	117,253	8,585	1,327	568,231	30,834	37,894	4,879	498,953	25,699	86,362	7,824

	Board		Building		Boxes & Cartons		Paper Bags		Converted Paper Products		Miscellaneous Paper & Prod.
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Dollars
From LOS ANGELES—											
To Mexico	143	20	13,565	854	15	3	220	20	1,042	346	1,445
To Brazil	———	———	17,011	480	———	———	———	———	———	———	———
To Chile	———	———	12,750	405	———	———	———	———	———	———	———
To South America	———	———	25,499	720	———	———	———	———	———	———	49
To China	———	———	30,308	654	———	———	———	———	———	———	———
To Australia	———	———	108,901	3,837	76	48	———	———	———	———	1,248
To Europe	———	———	———	———	112	7	———	———	———	———	90
To Japan	———	———	———	———	20	10	———	———	———	———	———
To Philippines	———	———	———	———	470	42	60,000	5,200	300	100	25
To Orient	———	———	———	———	———	———	———	———	72	15	———
To Canada	———	———	———	———	———	———	———	———	———	———	16
From SAN FRANCISCO—											
To Mexico	———	———	———	———	———	———	———	———	48	25	515
To Canada	2,081	435	940	14	———	———	———	———	298	62	224
To Central America	1,726	375	———	———	300	225	47,173	1,622	1,373	568	2,040
To South America	5,350	927	31,040	1,033	———	———	9,480	947	22,789	8,918	70
To Orient	234,239	5,244	———	———	———	———	13,845	917	1,182	272	106
To Philippines	74,382	2,016	12,750	567	49,394	3,417	15,008	909	302	150	549
To Australia	256,466	7,014	51,095	1,550	376	211	163	12	20	1	19,980
To China	78	158	48,100	1,466	15,714	906	902	59	2,150	399	3,363
To Japan	———	———	56,600	1,855	300	40	———	———	148	140	2,207
To Peru	———	———	———	———	———	———	183	37	———	———	105
To Venezuela	———	———	———	———	———	———	———	———	105	95	44
To Europe	———	———	———	———	———	———	———	———	———	———	51
From OREGON—											
To China	193,704	4,155	———	———	———	———	6,531	366	———	———	———
To Chile	———	———	———	———	———	———	332	18	———	———	———
To Colombia	———	———	———	———	———	———	10,505	746	———	———	———
To Peru	———	———	———	———	———	———	46,141	2,690	———	———	———
To South America	———	———	———	———	———	———	5,166	312	———	———	———
To Philippines	———	———	———	———	———	———	129,511	7,608	———	———	———
To Europe	———	———	———	———	———	———	———	———	———	———	50
From WASHINGTON—											
To Canada	194,266	7,642	229	23	2,309	479	462	39	2,738	936	6,225
To China	37,198	1,440	———	———	———	———	———	———	280	49	110
To Philippines	———	———	———	———	335	26	———	———	———	———	18
To Japan	———	———	———	———	———	———	———	———	888	606	435
Pacific Coast Total	999,833	29,406	408,788	13,508	69,421	5,414	345,620	68,309	33,735	12,681	38,965

Total All Paper Exports for Month of September, 1929	3,568 tons;	$494,409
Total All Paper Exports for Month of October, 1929	3,336 tons;	353,099
Total All Paper Exports for Ten Months, 1929	30,140 tons;	$3,213,767

Washington shipped the following wood pulp during the month of October, 1929: To Belgium, 32 tons, $1,452; to France, 542 tons, $22,088; to Italy, 53 tons, $2,160; to Norway, 50 tons, $2,000; to United Kingdom, 592 tons, $24,688; to Canada, 134 tons, $1,500; to South America, 497 tons, $1,552; to China, 2 tons, $60; to Japan, 4 tons, $120.

CLASSIFICATIONS—For convenience of presentation, some classifications have been combined, as follows: "printing," includes book (not coated), cover and surface coated paper; "greaseproof" includes waterproof; "tissues" includes crepe, tissue, paper towels, napkins and toilet; "board" includes boxboard, bristol, bristolboard and other paper board and strawboard; "building" includes sheathing, and other building paper; "writing" includes fancy papeteries and other writing; "converted paper products" includes envelopes, cash register rolls, index file and other office forms; "miscellaneous" includes blotters, paper hangings, vulcanized fibre sheets, strips, rods and tubes, manufactures of vulcanized fibre and other paper products. COUNTRIES—Under the classification "Central America" are included all of the Central American countries and Cuba. "South America" includes only the following South American countries: Ecuador, Paraguay, Bolivia, Uraguay, and the Guianas; other South American countries are classified separately. "Orient" includes all the Asiatic countries with the exception of China and Japan, which are separately classified. New Zealand is included under "Australia."

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Ferric Chloride
Sulphur Monochloride
Sulphur Dichloride
Sulphuryl Chloride
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When writing to HOOKER ELECTRCHEMICAL CO., *please mention* PACIFIC PULP AND PAPER INDUSTRY

PACIFIC COAST PAPER IMPORTS—SEPTEMBER, 1929

	Newsprint		Printing Papers		Writing & Drawing		Greaseproof		Wrapping		All Other Paper
	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
To LOS ANGELES—											
From Canada	45,867	1,493,316									50
From Sweden	6,261	261,206							1,119	28,175	
From Czecho-Slovakia			945	501							
From Austria					804	2,189					152
From Belgium					283	855	241	625			316
From France					753	602					903
From United Kingdom					691	1,194					401
From Germany									156	190	3,624
From Japan											364
To SAN FRANCISCO—											
From Sweden	78,163	2,993,528	1,752	43,078							
From Canada	128,563	4,249,157							3	10	202
From United Kingdom			1,383	1,250							1,404
From China			22	172	103	140					851
From Australia					769	1,362					495
From France					402	555					34,522
From Netherlands					652	1,307					13
From Japan					215	596					2,304
From Germany									2,177	1,815	7,822
From Belgium											250
From Czecho-Slovakia											40
To OREGON—											
From Austria					76	111					77
From United Kingdom					308	684					
From Japan					19	13					5
From China											64
From France											226
From Germany											393
To WASHINGTON—											
From Austria					667	1,420					893
From France					338	565					537
From United Kingdom					3	7					5
From Canada	432,270	12,993,702			120	225					1,652
From China					800	2,450					59
From Japan					8	5					9,593
From Czecho-Slovakia											7
From Germany											2,282
Pacific Coast Total	691,124	21,990,909	4,102	45,001	7,011	14,280	241	625	3,455	30,190	69,506

Total Imports of All Paper and Paper Products—September, 1929—$776,439.

SHIPMENTS OF OVERISSUE NEWSPAPER—OCTOBER, 1929

From Pacific Coast Customs Districts—October, 1929

From Los Angeles

Country of Destination—	Pounds	Dollars
China	539,760	13,664
Orient	552,080	5,008
Japan	149,800	1,500
Philippines	601,000	6,256
Total	1,842,640	26,428
From San Francisco		
Central America	49,200	715
Orient	1,350,453	15,394
Mexico	189,840	1,849
China	224,000	2,128
Japan	389,960	3,503
Total	2,219,453	23,589
From Oregon		
China	140,000	1,360
Total	140,000	1,360
From Washington		
China	169,960	423
Total	169,960	423
Total Coast Shipment	4,372,053	51,800

Propose Mill At Rainier, Oregon

Herman Kolberg, a leading figure in the financing of the Northwestern Pulp & Paper Co. fiasco at Astoria, Oregon, now has offices at 704-705 Porter Building, Portland, listed as the Diversified Investment Co., and, with Fred A. Douty, of the Multnomah Lumber & Box Co., is apparently a prime mover in a new project to establish a pulp mill at Rainier, Oregon. Rainier is a modest little town about 60 miles down the Columbia River from Portland, directly opposite Longview, Washington, and boasts a large and long idle sawmill structure, around which it is said the new project is contemplated.

It is said that plans have progressed to the point where a 600-ton pulp mill, sulphate and sulphite, is contemplated. A preliminary survey has been made. It is understood further that an attorney representing the Portland group has gone East, the purpose being to discuss with some six or seven large paper mills the feasibility of coming into the proposition. These mills are understood to be without pulp supplies of their own and are at present heavy importers of foreign pulp. If plans mature these mills would secure their supplies from the Rainier mill. A holding company would be formed with the several paper mills to be subsidiaries.

Mr. Kolberg intimates that the several paper mills have already indicated that they are favorable to the project, but it could not be learned what mills were interested.

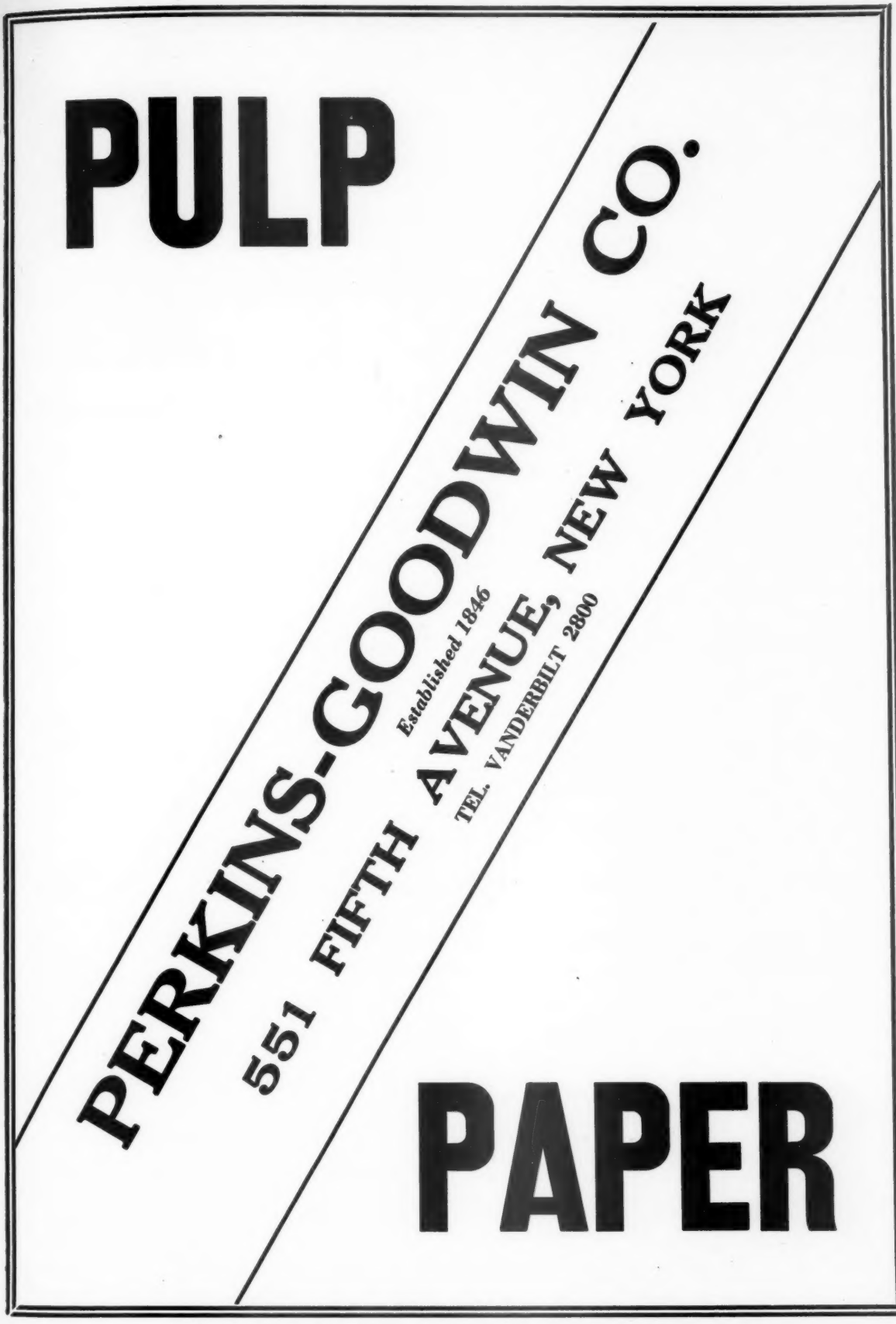
The project would be publicly financed.

Nederhoed Resigns From Umpqua

W. L. Nederhoed, active for the past year in promoting a 100-ton sulphite mill to be built by the Umpqua Pulp & Paper Co., at Bardiner, Oregon, resigned from the company December 15. Mr. Nederhoed had previously announced that he would sail shortly for Japan to confer with representatives pledged to take a part of the mill's output. He could not be reached for a statement.

Beyond confirming Mr. Nederhoed's resignation, Joe Kaster, Sr., who is to be in charge of the pulp mill construction, declined to make a statement. When pressed he declared he would not be in a position to make public any of the company's plans until early next month.

Mr. Kaster, who joined the organization last August, was recently elected president. Company offices are maintained at the Bedell Building, Portland.



When writing to PERKINS GOODWIN CO. *please mention* PACIFIC PULP & PAPER INDUSTRY

News Print Production in North America
November, 1929

The News Print Service Bureau's bulletin No. 143 shows production in Canada during November 1929 amounted to 252,046 tons and shipments to 253,219 tons and shipments of 369,944 tons. During Novem- and shipments 116,726 tons, making a total United States and Canadian news print production of 365,775 tons and shipments of 364,944 tons. During November, 22,151 tons of news print were made in Newfoundland and 1,652 tons in Mexico, so that the total North American production for the month amounted to 389,578 tons.

The Canadian mills produced 322,130 tons more in the first eleven months of 1929 than in the first eleven months of 1928, which was an increase of 15 per cent. The United States output was 19,177 tons or 1 per cent less than for the first eleven months of 1928. Production in Newfoundland was 22,306 tons or 11 per cent more in the first eleven months of 1929 than in 1928 and in Mexico 2,146 tons more, making a total increase of 327,405 tons or 9 per cent over the same period in 1928.

During November the Canadian mills operated at 91.2 per cent of rated capacity, United States mills at 77.6 per cent and Newfoundland mills at 108.1 per cent. Stock of news print paper at Canadian mills totalled 28,891 tons at the end of November and at United States mills 23,549 tons, making a combined total of 52,440 tons which was equivalent to 3.2 days' average production.

NORTH AMERICAN PRODUCTION

	Canada	United States	Newfoundland	Mexico	Total
1929—November	252,046	113,729	22,151	1,652	389,578
Eleven Months	2,495,628	1,274,486	234,377	17,403	4,021,894
1928—Eleven Months	2,173,498	1,293,663	212,071	15,257	3,694,489
1927—Eleven Months	1,900,513	1,365,988	185,263	12,882	3,464,646
1926—Eleven Months	1,714,020	1,542,415	169,256	11,898	3,437,589
1925—Eleven Months	1,385,234	1,393,637	83,240	11,695	2,873,806
1924—Eleven Months	1,240,652	1,359,520	59,404	10,538	2,670,114
1923—Eleven Months	1,169,872	1,365,546	59,141	11,000	2,605,559

O'Keefe-Orbison Changes Offices

The O'Keefe-Orbison Engineering and Construction Co., hydraulic and consulting engineers, announce that on and after December 5, 1929, their Appleton office will be located in larger quarters at 215 E. Washington Street, Appleton, Wisconsin.

The company's services extend to water power improvements, pulp and paper mills, industrial engineering, reports and similar functions.

Recently the company has been looking over the Pacific Coast field, particularly in connection with a proposed pulp mill near Priest River, Idaho.

The HOTEL CONGRESS

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Steam is not put directly into the digester, but circulates through a series of seamless steel pipes. Therefore *no dilution*—black liquor actually increases in density and capacity of the recovery plant is stepped up. Pressure is brought up rapidly, followed closely by temperature: Liquor is forced through the heater and spread uniformly through the digester every ten or fifteen minutes. *Uniformity.* No over-cooking —no undercooking.

This produces bigger yield from the wood—a stronger, better quality pulp—and reduces quantity of chemicals used. As cooking time is reduced, the capacity is increased. Undiluted, the steam condensate is pumped directly back to the boilers—another big economy.

Savings effected by the use of this system pay for the installation in an astonishingly short time. Its advantages are so great that the initial cost is hardly a consideration.

Slab Barking With U-BAR Drums in the Union Bag and Paper Company

Slab barking in the Union Bag and Paper Company with U-BAR Drums is a very real success. And no matter how strict the requirements are for CLEAN pulp, the U-BAR Slab Barking method meets them.

Built to fit the job—Big Production results from the special design and its continuation is insured by rugged dependable construction. The specially designed U-BARS of high carbon steel are securely *riveted* to heavy ship channel rings—thus effective, clean barking.

Smooth rotation is the result of chain suspension with guide rolls, sprockets and spring take-ups or shock absorbers—hence *faster* rotation and BIG PRODUCTION.

The Giant Nekoosa Bark Press

Handles refuse bark from the U-BAR Drums. Reduces water in bark to 55%—almost natural water content. Turns bark disposal problem into a steam generating asset. Strong, rugged construction. Simple operation. A machine of far-reaching economy, as all users enthusiastically testify.

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Double Deck and Single Deck Screens

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— BEST in the Long Run —

Canadian Exports of Pulp and Paper November, 1929

Exports of pulp and paper from Canada in November were valued at $17,952,008, according to the report issued by the Canadian Pulp and Paper Association. This was an increase of $56,000 over the total for October and of $1,100,000 over November, 1928.

Wood pulp exports for the month were valued at $4,152,432 and exports of paper at $13,799,576, as compared with $3,703,414 and $14,192,737 respectively in the previous month.

Details for the various grades of pulp and paper are as follows:

	November, 1929		November, 1928	
PULP—	Tons	Dollars	Tons	Dollars
Mechanical	26,864	816,190	25,318	691,927
Sulphite Bleached	22,598	1,708,096	18,614	1,451,431
Sulphite Unbleached	17,843	866,095	18,312	902,562
Sulphate	12,442	708,247	13,132	763,415
Screenings	2,837	53,804	2,349	46,922
All Other	.....	318,436	.....	358,849
	82,584	4,152,432	77,725	3,856,257
PAPER—				
Newsprint	229,141	13,294,287	196,187	12,422,625
Wrapping	1,216	135,651	1,331	148,930
Book (cwts.)	5,793	49,106	9,998	80,459
Writing (cwts.)	236	2,096	17	409
		13,799,576		13,011,272

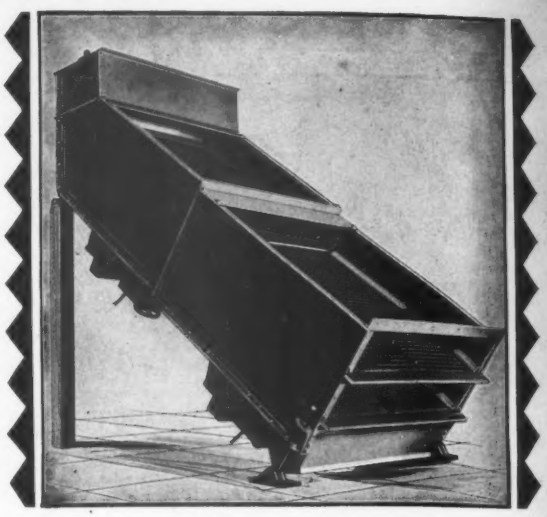
For the eleven months ending November 30th, 1929, the total value of pulp and paper exported from Canada amounted to $181,466,226 as compared with a total of $174,756,988 for the corresponding months of 1928, an increase for this year of $6,709,238.

Exports of the various grades of pulp and paper for the eleven months are as follows:

	11 Months, 1929		11 Months, 1928	
PULP—	Tons	Dollars	Tons	Dollars
Mechanical	194,949	5,469,119	183,690	5,010,477
Sulphite Bleached	235,341	17,853,114	229,683	17,441,668
Sulphite Unbleached	180,598	8,906,559	194,409	9,748,257
Sulphate	125,888	7,371,312	148,416	8,745,192
Screenings	33,087	593,991	28,169	566,553
	769,863	40,194,095	784,367	41,512,147
PAPER—				
Newsprint	2,290,462	135,662,449	1,993,425	127,694,880
Wrapping	13,792	1,505,549	14,587	1,601,611
Book (cwts.)	68,965	587,121	65,367	539,103
Writing (cwts.)	4,170	38,968	4,034	37,786
All Other	.....	3,478,044	.....	3,371,461
		141,272,131		133,244,841

Pulpwood exports have been smaller this year than for several years past. The total shipments in the first eleven months of the year amounted to 1,227,879 cords valued at $12,619,783 as compared with 1,482,598 cords valued at $15,805,576 exported in the corresponding months of 1928.

M. B. Olmsted, assistant to the president of the Zellerbach Paper Co., of San Francisco, made a brief visit to Los Angeles in January.



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No belts or pulleys!

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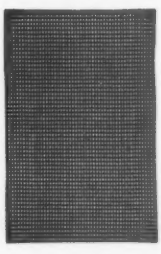

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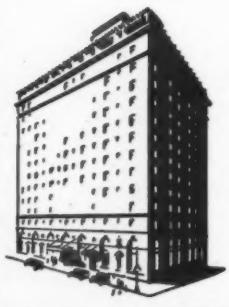

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